TAVL4 application user manual v1.4

1. Contents

1. CONTENTS 2

2. INTRODUCTION 3

3. GETTING STARTED 4

3.1 RECOMMENDED PC REQUIREMENTS 4
3.2 .NET FRAMEWORK INSTALLATION 4
3.3 CRYSTAL REPORTS INSTALLATION 4
3.4 TAVL APPLICATION INSTALLATION 4
3.5 LAUNCHING TAVL APPLICATION 5

4. INTERFACE 7

5. MAIN 8

5.1 OBJECTS 8
5.2 TRACK 10
Graphic Reports 11
5.3 FIND ADDRESS 14
5.4 OTHER 15
Route Planing 15

6. EVENTS 16

6.1 EVENTS 16
6.2 GEOFENCING 18
GeoFence 18
Zone creation 18
6.3 WARNINGS 22
PIC. 6.16. WARNING CONSOLE SETTINGS 22

7. MESSAGING 23

7.1 SMS 23
SMS operations 23
7.2 GARMIN FUNCTIONALITY 27
Text messaging 27
Destination message 28
ETA request message 29

8. TOOLS 33

8.1 GROUPING 33
8.2 CONFIGURATION 37
Module Configuration 37
8.3 BULK CONFIGURATION 39
8.4 SETTINGS 40

9. REPORTS 44

9.1 BASIC REPORTS 44
9.2 DRIVEN DAY ACTIVITY BY TACHOGRAPH 47
9.3 DRIVEN WORKTIME SUMMARY BY TACHOGRAPH 48
9.4 DRIVER VIOLATION BY TACHOGRAPH 49

10. FILTER 50

10.1 FILTER OBJECTS 50
10.2 FILTER 51

11. LOCALIZATION 52

12. FREQUENTLY ASKED QUESTIONS (FAQ) 53

13. CHANGE LOG 55

2. INTRODUCTION

TAVL application is software used to connect to the server and retrieve and display information that FM1100, FM1200, FM2200, FM3100, FM3200, FM4100, FM4200, FM5300 or/and GH 1201, GH 1202, GH 3000 stores there.

TAVL user manual provides information to fully understand and operate TAVL applications basic functions. Here you will find application installation guide, interface, reports, configuration and event description, operation list. Note, that some operations or functions are not included in base version, but they can be enabled or disabled by server provider.

WARNING: Teltonika reserves the right to change/add/remove functions. Also images and functions can be different from presented in Manual.

Copyright © Teltonika 2013

All rights reserved. Reproduction, transfer, distribution or storage of part or all of the contents in this document in any form without the prior written permission of Teltonika is prohibited.

3. GETTING STARTED

3.1 Recommended PC requirements

TAVL application runs on a PC with MS Windows XP (x86) with Service Pack 3 or later, MS Windows Vista (x86 & x64) with Service Pack 2 or later or MS Windows 7 (x86 & x64). MS .NET Framework v3.5 Service Pack 1 and Crystal Reports are also necessary components[1].

Personal Computer Requirements:

Supported Architectures:

- 32-Bit (x86)
- 64-Bit (x64)

Minimum Hardware requirements:

- Pentium IV Computer with 2.4 GHz or faster processor
- 2 GB RAM (Add +512 MB if running in a virtual machine)
- 100MB of available hard disk space
- DirectX 9 capable video card running at 1024 x 768 or higher – resolution display

3.2 .NET Framework installation

Download .NET Framework 3.5 SP1 from Microsoft website and install it (url: http://www.microsoft.com/downloads/thankyou.aspx?familyId=ab99342f-5d1a-413d-8319-81da479ab0d7&displayLang=en.

If the download doesn't start automatically, click on the "Start Download" button.

3.3 Crystal Reports installation

Download and install Crystal Reports for .NET Framework - http://avl1.teltonika.lt/downloads/tavl/Crystal%20Reports/CRforVS_redist_install_32bit_13_0.zip

3.4 TAVL application installation

Download and extract latest available version of TAVL application (for more information contact one of our sales managers).

[1] If TAVL Installer were used, all required software will be installed automatically. If only application used, all components must be installed.

3.5 Launching TAVL application

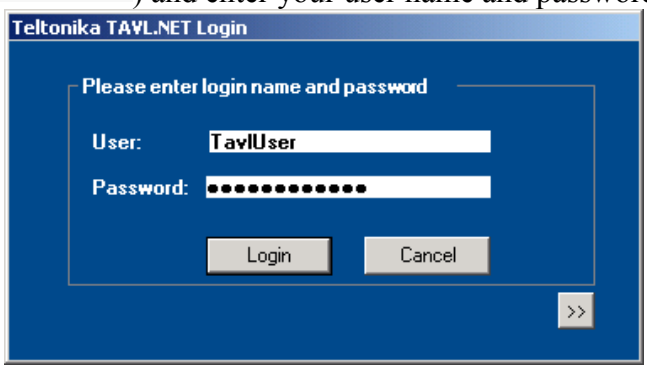
You can enter TAVL client application as:

User – has basic permissions. User see devices which is assigned to it only.

Power User – have advanced permissions. Power User can see all devices from all groups.

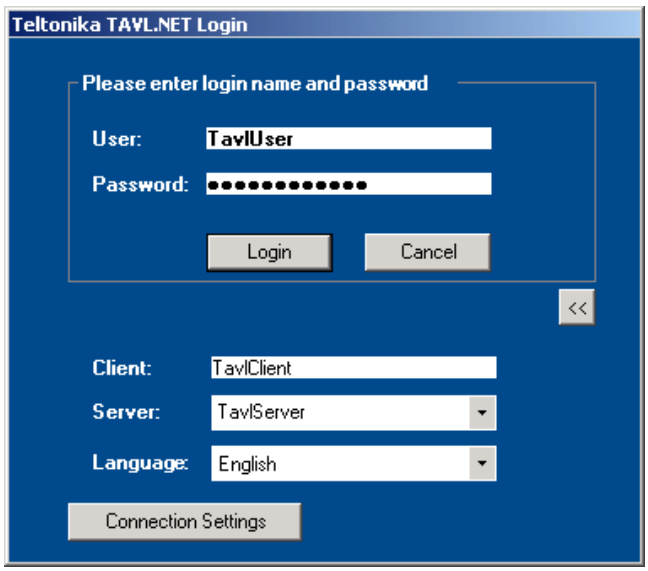
Administrator – have more advanced permissions (including User and Power User permissions and more), can connect to any user on the server, often this permission has owner of the server.

Launch tavl.exe (tavl.exe) and enter your user name and password[2], see pic. 3.1:



Pic. 3.1. TAVL application initial window

Additional settings can be found after clicking >> button: client name, destination server and language, see pic. 3.2.



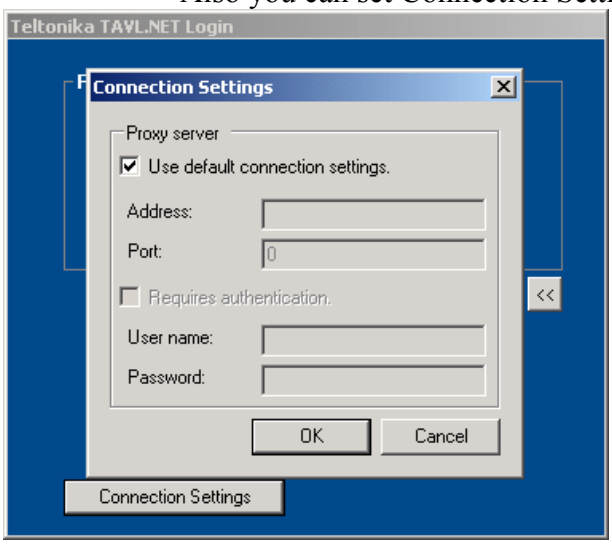
Pic. 3.2. TAVL application additional settings

Client name – name of client you are trying to connect, if you are user or power user.

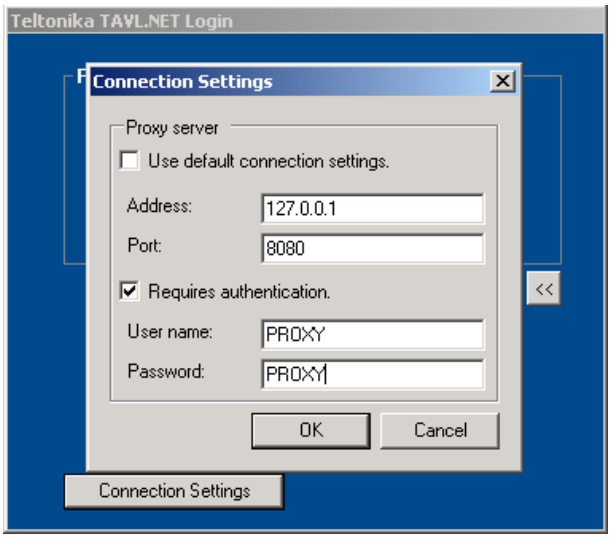
Note: you may leave "Client" empty if connecting as administrator.

[2] User name and password must provided by server provider

Also you can set Connection Settings:



Default Connection Settings

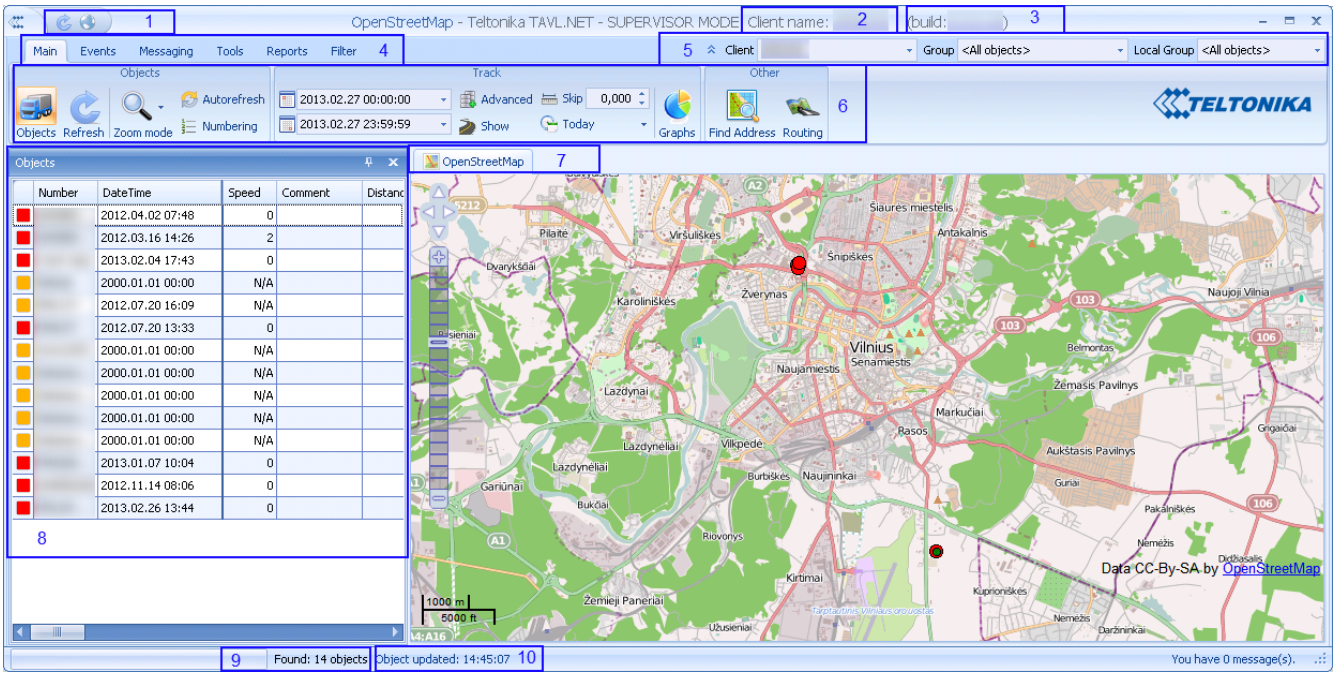


Proxy Connection Settings

Pic. 3.3. Proxy settings

By default Connection Settings are set to default connection settings, but if proxy server used to access the internet then in Address field type the IP address of the proxy server and in Port field enter the port number that is used by proxy server for client connections (by default 8080). If proxy server requires User name and Password, tick checkbox “Requires authentication” and enter user name and password, see pic 3.3.

4. INTERFACE



Pic. 4.1. TAVL Interface

TAVL application consists of these basic parts:

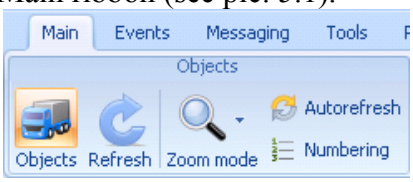
1. Quick menu – possibility to add most used functions to reach them as fast as possible;
2. Client name – information about name of client to which user is connected;
3. TAVL application version;
4. Menu toolbar;
5. Client information – Name of client, possibility to choose Group or Local Group.
6. Tools – tools connected to the name of toolbar;
7. Maps – could choose one of possible maps (Google Maps, BING, Virtual Earth, Map Point)[3]
8. Object Window – contain object list, may contain track or event windows as well;

[3] On our server only Open Street Maps are used. All other maps could be used on Clients server. For more information contact sales manager.

5. MAIN

5.1 Objects

Object window contains a list of all available objects that are available for the client. It is loaded with TAVL application by default, if you close the window and want to see it again you need to click "Objects" button in Main ribbon (see pic. 5.1).



Pic. 5.1. Main

- Object – show objects list;
- Refresh – refresh objects list showing last possible possition of them;
- Zoom mode – used to zoom map after each refresh. Available three options: zoom all objects (all objects shown on map), follow concrete object (zoom to one choosen object) or turn off (no zoom mode used);
- Auto refresh – auto refresh objects list, refresh interval is configured in common settings,

When objects list loaded, left to the "Number" column in objects grid is coloured rectangular, which indicates the state of object (table 1):

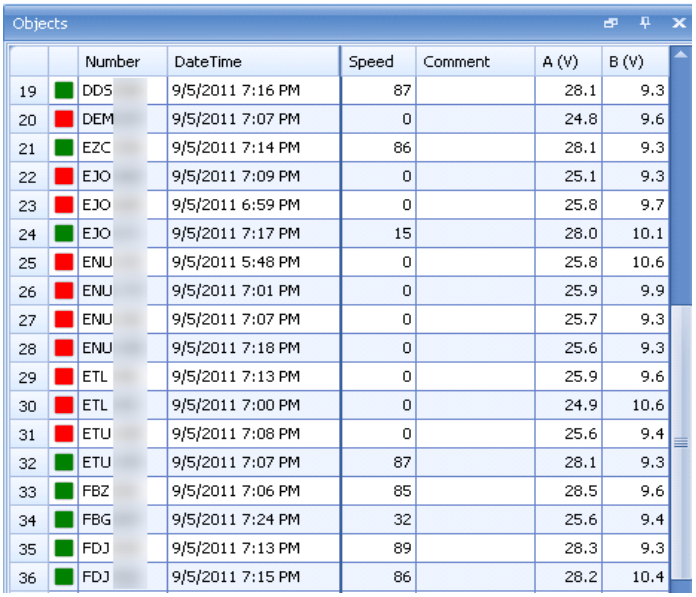
Table 1. Vehicle status indication

Color	State
RED	Idle
GREEN	Moving
YELLOW	no FIX[4]
PURPLE	For some configurable amount of time no data came to server or when device first time attached to user and TAVL application loaded

Date/Time column shows timestamp for the latest coordinate received from device along with other additional properties (for example: Speed, Comment, Ignition and ect.[5]), see pic. 5.2. Sorting could be done by any column as in ascending order as in descending too.

[4] Visibility of sattelites

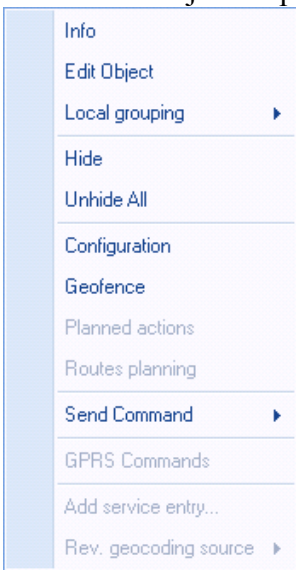
[5] To see this properties configurations on FM(GH) (look at FM(GH)user manual) and server management (TAVL management) must be done.



		Number	DateTime	Speed	Comment	A (V)	B (V)
19		DDS	9/5/2011 7:16 PM	87		28.1	9.3
20		DEM	9/5/2011 7:07 PM	0		24.8	9.6
21		EZC	9/5/2011 7:14 PM	86		28.1	9.3
22		EJO	9/5/2011 7:09 PM	0		25.1	9.3
23		EJO	9/5/2011 6:59 PM	0		25.8	9.7
24		EJO	9/5/2011 7:17 PM	15		28.0	10.1
25		ENU	9/5/2011 5:48 PM	0		25.8	10.6
26		ENU	9/5/2011 7:01 PM	0		25.9	9.9
27		ENU	9/5/2011 7:07 PM	0		25.7	9.3
28		ENU	9/5/2011 7:18 PM	0		25.6	9.3
29		ETL	9/5/2011 7:13 PM	0		25.9	9.6
30		ETL	9/5/2011 7:00 PM	0		24.9	10.6
31		ETU	9/5/2011 7:08 PM	0		25.6	9.4
32		ETU	9/5/2011 7:07 PM	87		28.1	9.3
33		FBZ	9/5/2011 7:06 PM	85		28.5	9.6
34		FBG	9/5/2011 7:24 PM	32		25.6	9.4
35		FDJ	9/5/2011 7:13 PM	89		28.3	9.3
36		FDJ	9/5/2011 7:15 PM	86		28.2	10.4

Pic. 5.2. Objects list

After clicking 'Objects' in toolbar, TAVL displays them on a map. Left-click on the object in the list centers view on that object. Right-click on the object displays the following menu, see pic. 5.3:



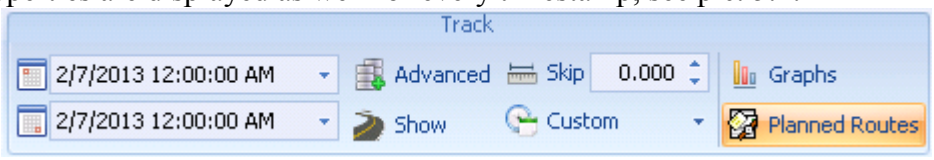
Pic. 5.3. Object right-click menu

- Info – displays object information entered in database;
- Edit Object – ability to modify object number and comments for login with Administrator or Power User rights, login with simple user rights can only add comment.
- Local grouping – ability to group objects from list into groups for every user;
- Hide – hides current object from visible list;
- Unhide All – reveals all hidden objects
- Configuration – opens object configuration menu;

- Geofence – opens Geofence menu;
- Routes planning – ability to plane route by adress points.
- Send Command – displays available SMS commands for FM series devices;

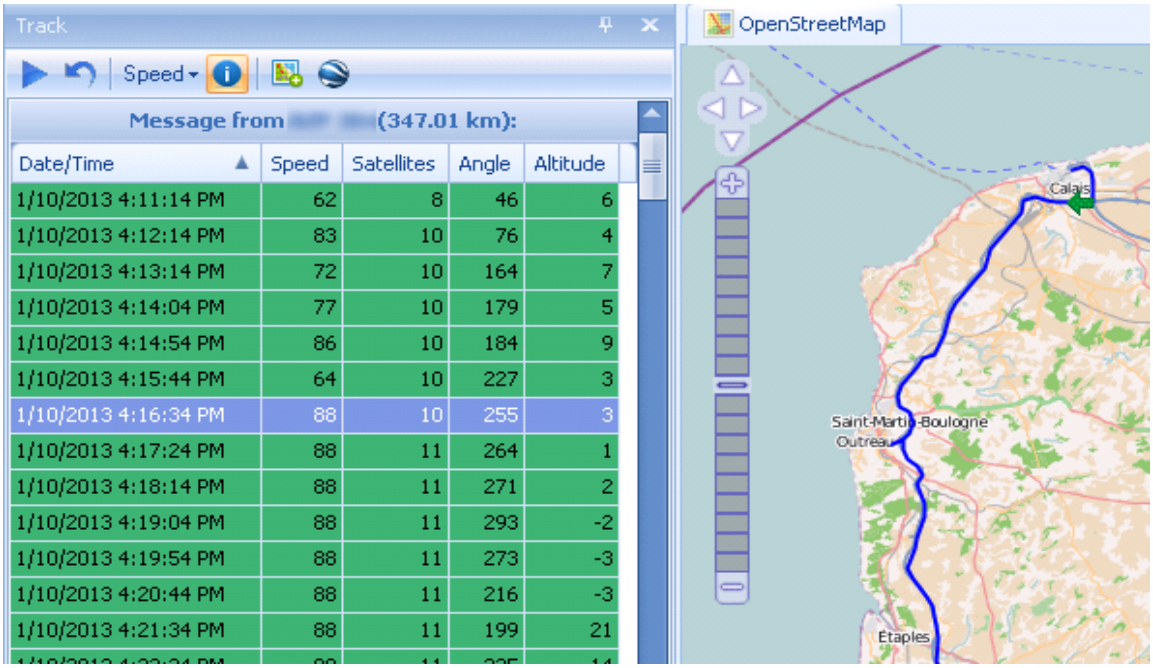
5.2 Track

'Track' toolbar, enables to set time interval to see the track of the object for that period. All additional properties are displayed as well for every timestamp, see pic. 5.4.



Pic. 5.4. Track toolbar

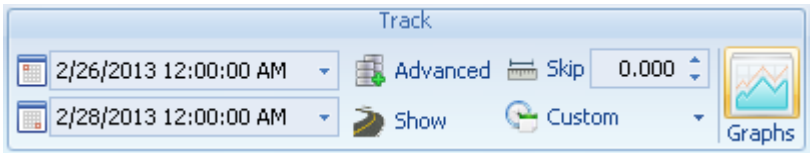
- Advanced – Include advanced track data
- Show – Show track data for selected period of time
- Skip – used to discard records that are too close to each other – you can enter minimum distance between coordinates to be displayed.
- Custom – Show track for one predefined periods of time (Last 24 hours, Today, Yesterday, This week, Last week, This month, Last month)
- Graphs – Show event graphic
- Planned routes – Show planned routes on track



Pic. 5.5. Track functionalities

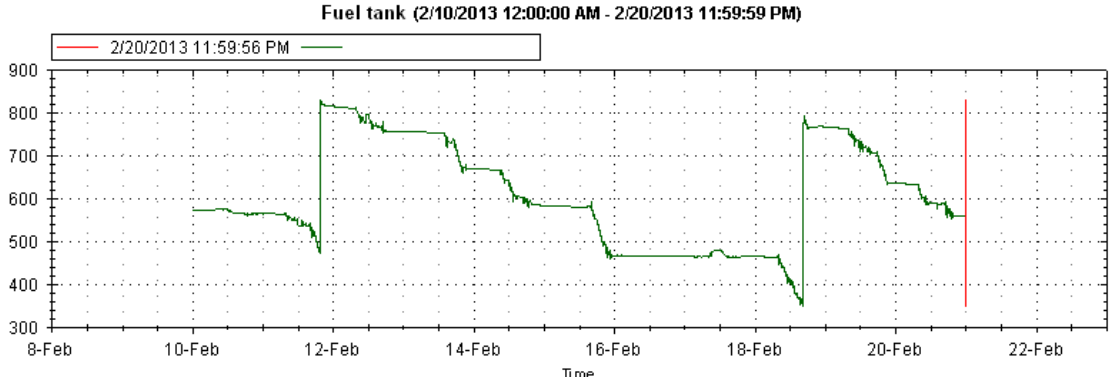
Track window enables also such options as Track Play, Info in balloon on track, export data to KML and create Geo Tunnel (Geozone by route), see pic. 5.5.
Play mode displays each coordinate for defined time. 'Play', 'Pause' and 'Stop' buttons are used to start, hold and stop preview, while 'Reverse' button replays track from the end to beginning. You can choose 6 different speeds to play track data.

Graphic Reports



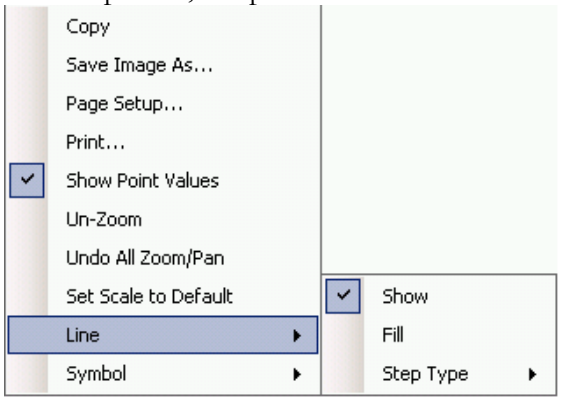
Pic. 5.6 Graphs

After generating a track of the object you can open a new window with all properties changes in time scale graphics – speed, power voltage, CAN bus information, etc. Information provided here is same as displayed in 'Track' window, except that it is in graphic mode. Left-click on a record in 'Track' window shows a vertical line on a graph at specified timestamp, see pic. 5.7.



Pic. 5.7. Graph vizualization

Some functions to manipulate the view of graphics are available. Middle button of a mouse increases or decreases the scale of timeline, right-click displays a view settings menu.
Image can be copied to clipboard, saved as picture format(*.emf, *.png, *.gif, *.jpg, *.tif, *.bmp), set page setup before printing or sent to printer, see picture 5.8.

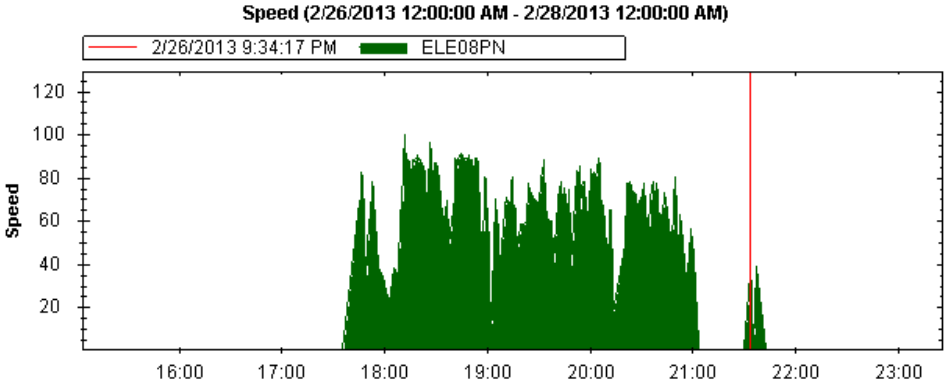


Pic. 5.8. Graph settings

Available graphics settings:

- Line

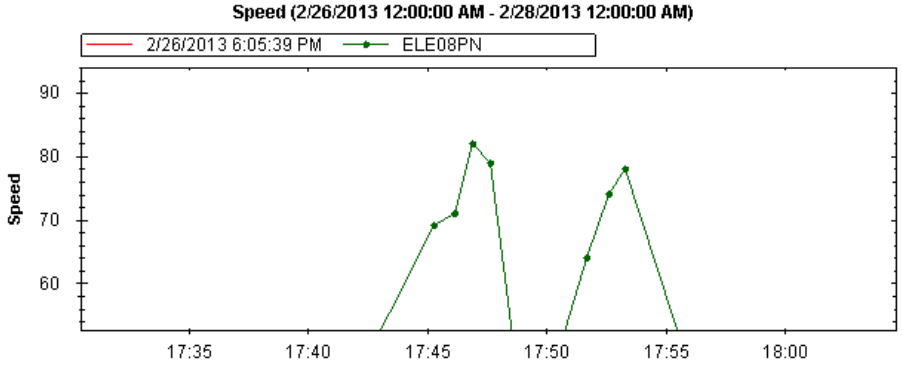
Show – enable/disable line on Graph
Fill – fill the graph
Step type:
ForwardStep – draw the curve as a stair-step in which each point defines the beginning (left side) of a new stair. This implies the points are defined at the beginning of an "event."
ReawardStep – draw the curve as a stair-step in which each point defines the end (right side) of a new stair. This implies the points are defined at the end of an "event."
NonStep – draw the curve as an ordinary line, in which the points are connected directly by line segments



Pic. 5.9. Example of graphic when fill data is eneble

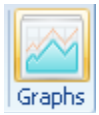
- Symbol

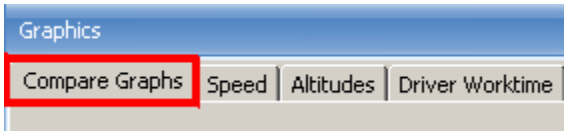
Type:
Square – square-shaped symbol;
Diamond – rhombus-shaped symbol;
Triangle – equilateral triangle symbol;
Circle – uniform circle symbol;
Xcross – "X" shaped symbol. This symbol cannot be filled since it has no outline;
Plus – "+" shaped symbol. This symbol cannot be filled since it has no outline;
Star – asterisk-shaped symbol. This symbol cannot be filled since it has no outline;
TriangleDown – unilateral triangle symbol, pointing down;
Hdash – horizontal dash symbol. This symbol cannot be filled since it has no outline;
Vdash – vertical dash symbol. This symbol cannot be filled since it has no outline;
Default – a Default symbol type;
None – no symbol is shown.

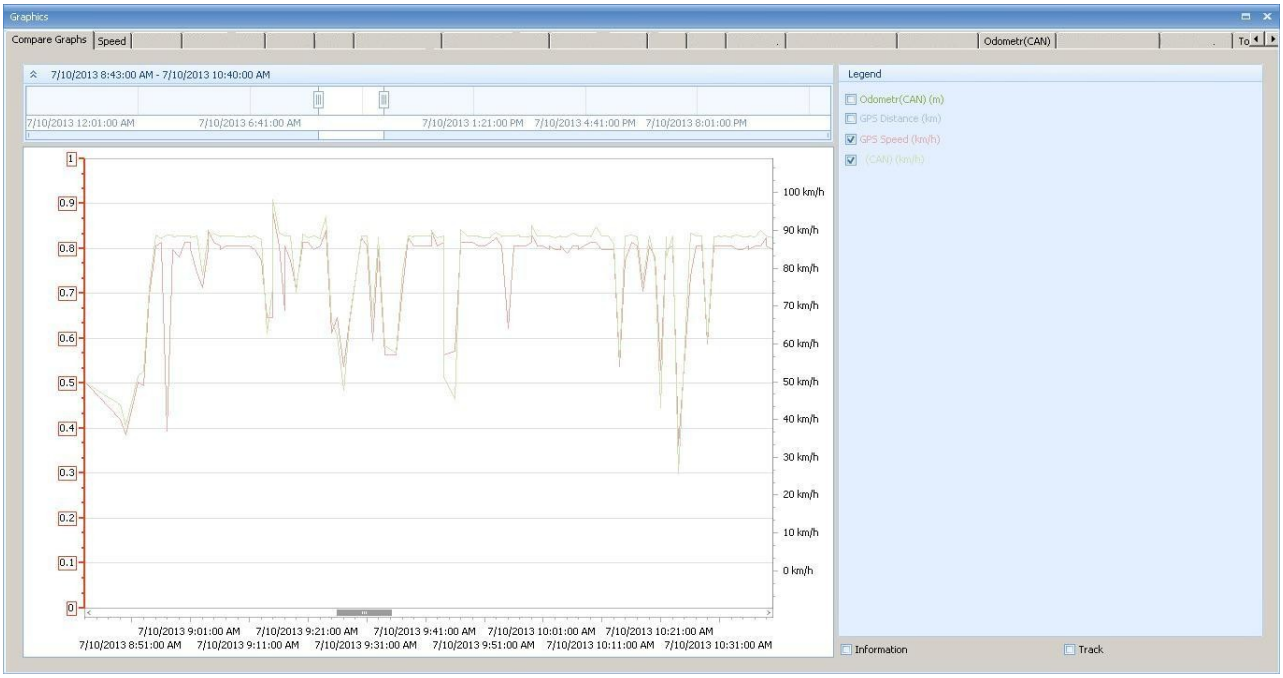


Pic. 5.10. Graphic example of symbol type Circle

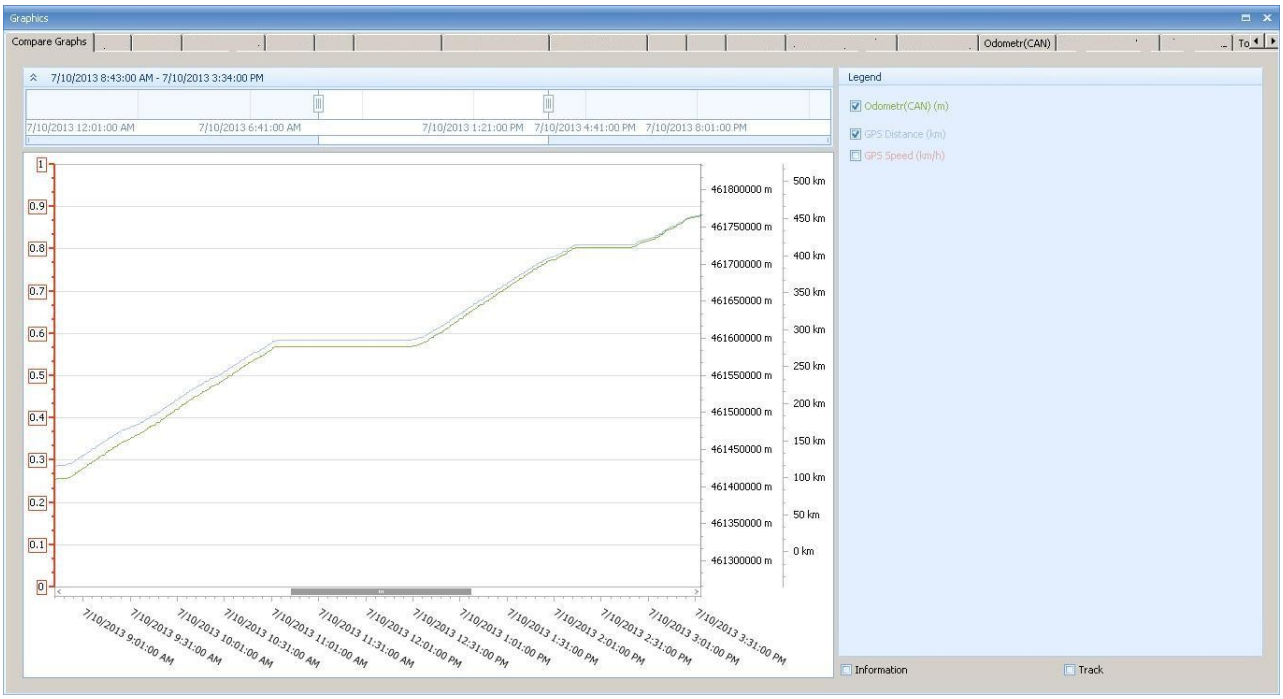
There is possibility to compare graphs with each other. Select icon “Graphs” and then on main ribbon select “Compare Graphs”. You can compare any graphs you want by marking check-box on right side of window (on Legend) in examples below (see pic. 5.11. and pic. 5.12.) its showed how easy you can compare difference between GPS and CAN speed graphs, GPS and Odometer distance graphs.







Pic. 5.11. CAN and GPS speed graphs



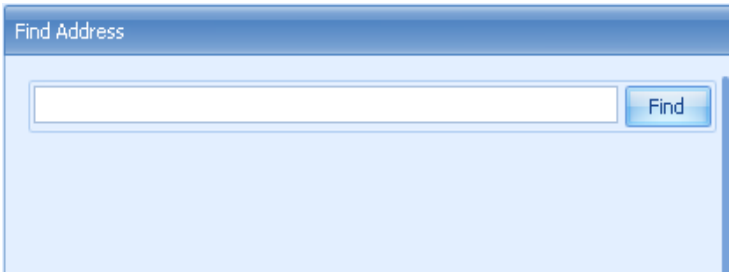
Pic. 5.12. GPS and Odometer distance graphs

5.3 Find Address

"Find address" function enable you to find any location on map and add it to "My Places"(points of interest) or to a "route". Press on "Find Address" icon as showed below.

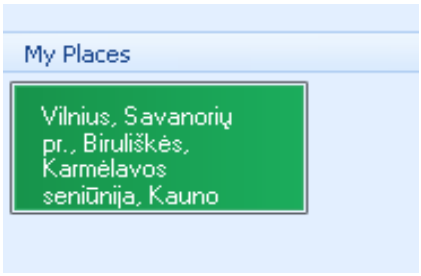
Then press on empty field named "Find"and specify location, which you want to find.
Location name can contain: city name, street name, village name or something like that.

When you entered location and pressed find is should appear yellow circle on map. If you press on that circle, an information window will pop-up, which gives more information about selected location.

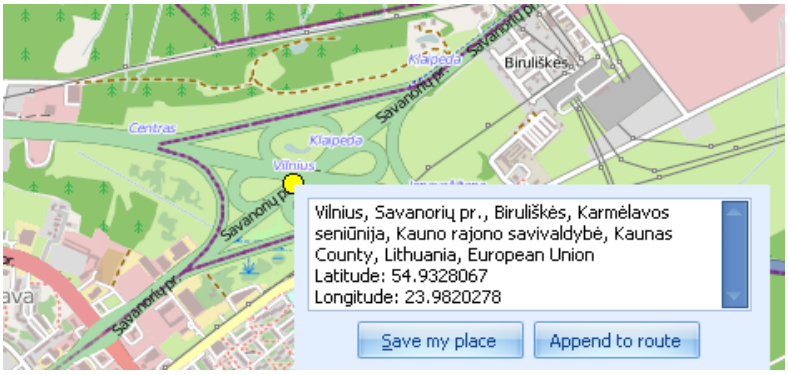


Pic. 5.13. Find field

As you see right side, there are two possible selections:
"**Save my place**" (points of interest) – save location to "My Places" list, where you can quickly find one of your saved locations on map without search.

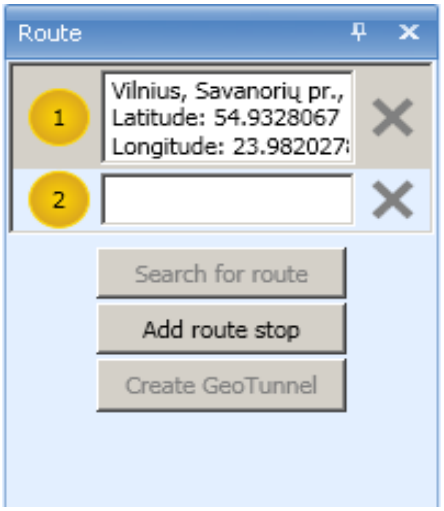


Pic. 5.15 "My places"(points of interest)


Vilnius, Savanorių pr., Biruliškės, Karmėlavos seniūnija, Kauno rajono savivaldybė, Kaunas County, Lithuania, European Union
Latitude: 54.9328067
Longitude: 23.9820278
Save my place
Append to route

Pic 5.14. Location on map

"**Append to route**" - add your location as a start of new route
It is also possible to make new route from saved "My Places"list locations.



Pic 5.16. Route

5.4 Other

Route Planing

Route planning is available on TAVL. There are two different kinds of route planning.

- From last object location to destination point;
- From point A to point B (user can add more than 2 points by adding additional route stops);

Start planning route.

Click "Main" and "Routing" *(see **figure 1**)*

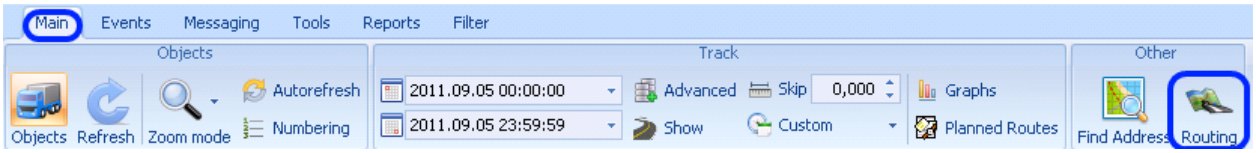


Fig. 1 Route planning menu bar

When routing is selected user can start to plan your own route. Write your destination points and click “search for route”. Additional point can be added by selecting “Add route stop”. *(see **figure 2**)*

When all data is set click “Search for route”, trip duration and distance will be calculated below menu bar. Route will appear on the map.

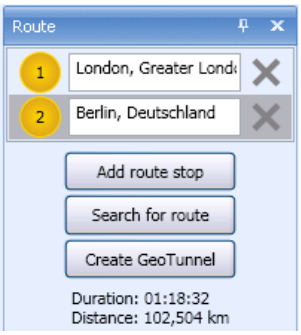


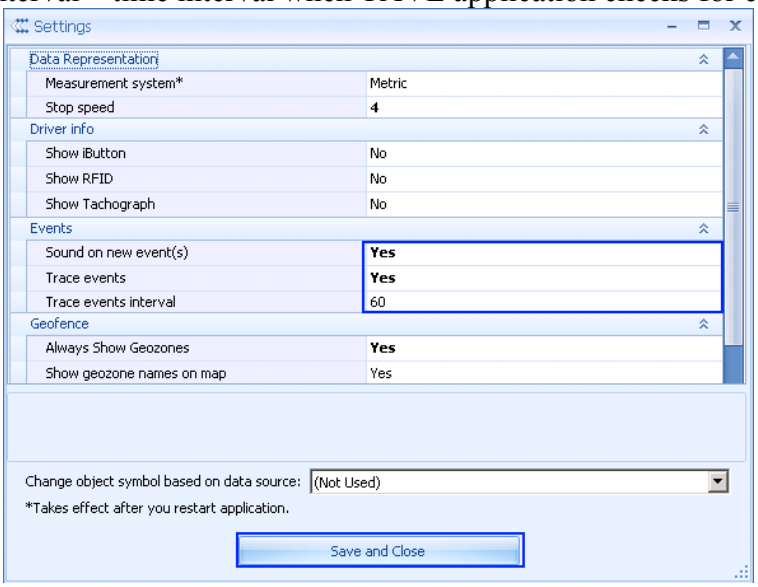
Fig. 2 Route planning

6. EVENTS

6.1 Events

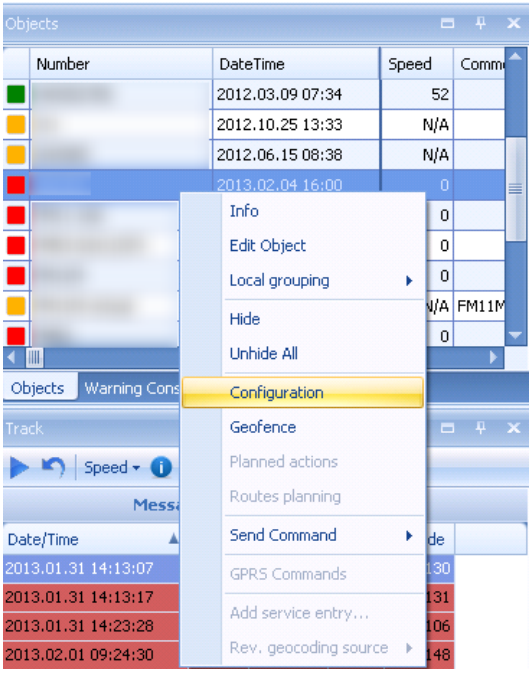
To get event notifications in TAVL application press F9 and in opened Settings window in Events settings enable following (see pic. 6.1):

- Sound on events – enables sound in TAVL application when event occures;
- Trace event – when event ocures a window will be oppened with event information;
- Trace events interval – time interval when TAVL application checks for events.



Pic. 6.1 TAVL settings window

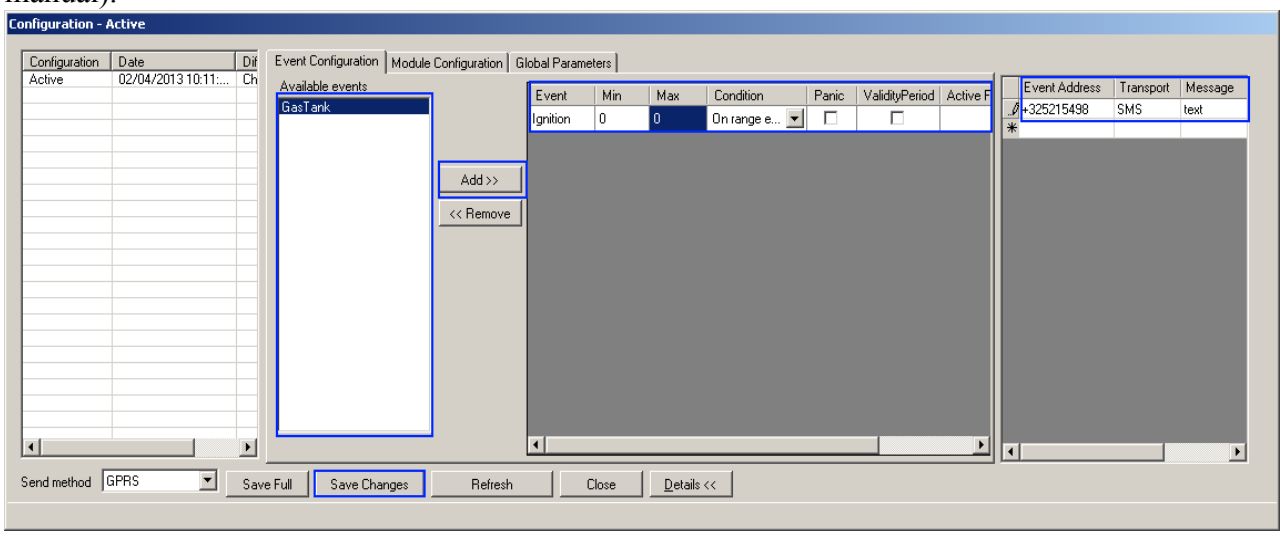
To get event indication in TAVL application FMXXXX or GHXXXX module must be configured first. To configure module right mouse click on object and select configure. Module configuration has the same functions like base configurator. When configuration is made for the first time, all parameters (system, GPS, GSM, GPRS, SMS, Send parameter, Accelerometer, I/O) must be configured. When configuration is done press ´Save Full‘ and wait, after some time configuration will be send to the device. It is possible to check configuration update status pressing refresh, see picture 6.2 .



Pic 6.2. Module selection

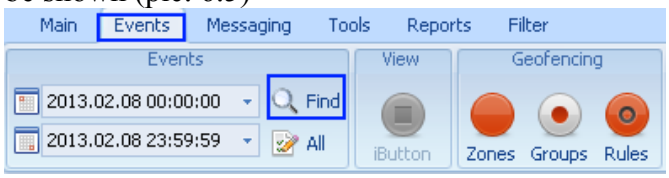
'Event Configuration'menu allows configuring events for IO elements. In the picture a sample is shown how to configure Ignition event that will send email to defined recipient. Choose an IO lement from available in 'Available Events' window (more can be added by enabling IO elements in database) and click 'Add'. Enter minimum and maximum values and condition like do this before in I/O elements configuration in the fields.
Press ´Details´ in ´Event Adress´ field write GSM numer for sms or email adress, select transport format and write message text.When press ´Save Changes´ and wait, after some time configuration will be send to the device. You can check it by pressing refresh.When current value of IO elements drops below or raises above defined range, a email or sms will be sent to the recipient entered in 'Event Address' field, see pic. 6.3.

Note. It is also possible to get events messages in Warning console (see warning console chapter of manual).

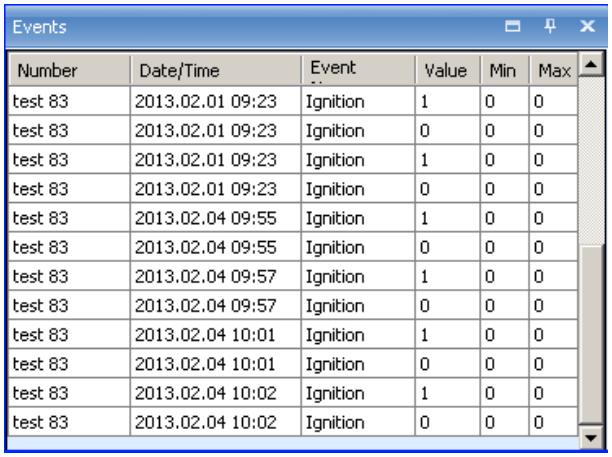


Pic. 6.3. Event configuration

Select Events tab and press find (pic. 6.4) event window will be oppened, where all the events will be shown (pic. 6.5)



Pic. 6.4. Events tab



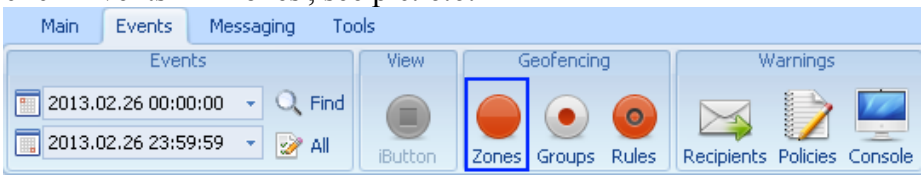
Number	Date/Time	Event	Value	Min	Max
test 83	2013.02.01 09:23	Ignition	1	0	0
test 83	2013.02.01 09:23	Ignition	0	0	0
test 83	2013.02.01 09:23	Ignition	1	0	0
test 83	2013.02.01 09:23	Ignition	0	0	0
test 83	2013.02.04 09:55	Ignition	1	0	0
test 83	2013.02.04 09:55	Ignition	0	0	0
test 83	2013.02.04 09:57	Ignition	1	0	0
test 83	2013.02.04 09:57	Ignition	0	0	0
test 83	2013.02.04 10:01	Ignition	1	0	0
test 83	2013.02.04 10:01	Ignition	0	0	0
test 83	2013.02.04 10:02	Ignition	1	0	0
test 83	2013.02.04 10:02	Ignition	0	0	0

Pic. 6.5. Events window

6.2 Geofencing

GeoFence

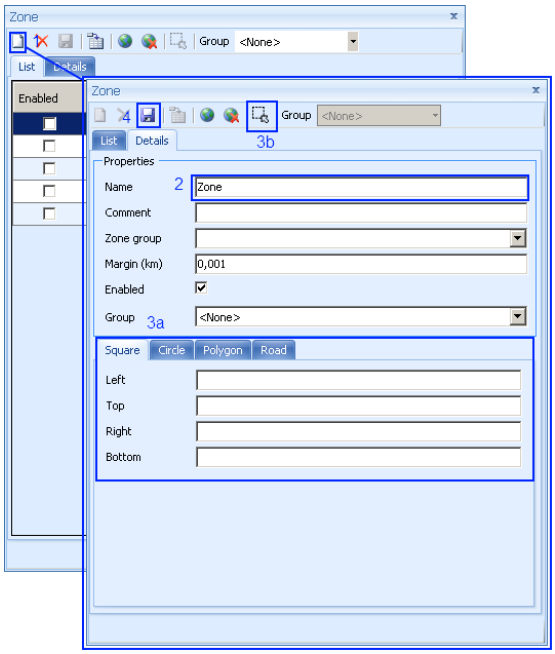
When coordinates are sent to the server, they are proceeded using application's algorithms. If coordinate is in the specified area, a notification can be sent.
In the toolbar click 'Events' – >'zones', see pic. 6.6.



Pic. 6.6. Geofencing tab

Zone creation

In the Zone window, see pic. 6.7, select New (1). Enter the name for the new zone (2) and then add some comments in the Comment's line. If some of Geofencing icons is not active „paled" contact with your sales represents to active this functionality.
Checkbox Enabled enables or disables geozone. If group of geozones is created in the line Zone group you can select it from the drop-down list to the right.
Enter Margin value. This value shows how far the object has to go away from the defined geozone (in meters) for the action to be taken (the event to be generated). Choose a shape for your new geozone in Type line (3a) and enter the coordinates. It can be a square, a circle a polygon and road.
To get the coordinates for the particular place on the map, to create a new geozone, click on the dotted square icon (3b) and then draw a shape on the map where you need your new geozone to be. T-AVL application will get the coordinates automatically. Then save new geozone (4)

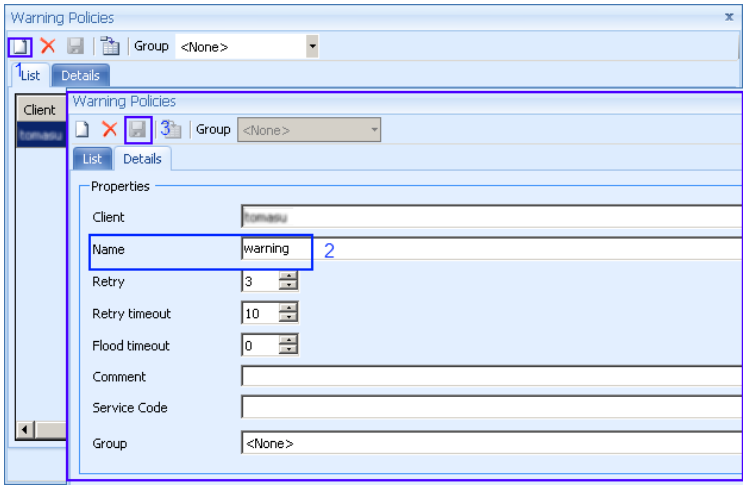


Pic. 6.7. New Geozone creation

In order to get a warning when a certain object enters or leaves the determined zone the Warning Recipients, Warning Policies and geofencing rules must be configured (see pic. 6.8).

Pic. 6.8. Warning recipients and policies

In Warning policies, see pic. 6.9, create new policy (1), then pick a name (2), and save new warning policy



Pic. 6.9. Warning policies

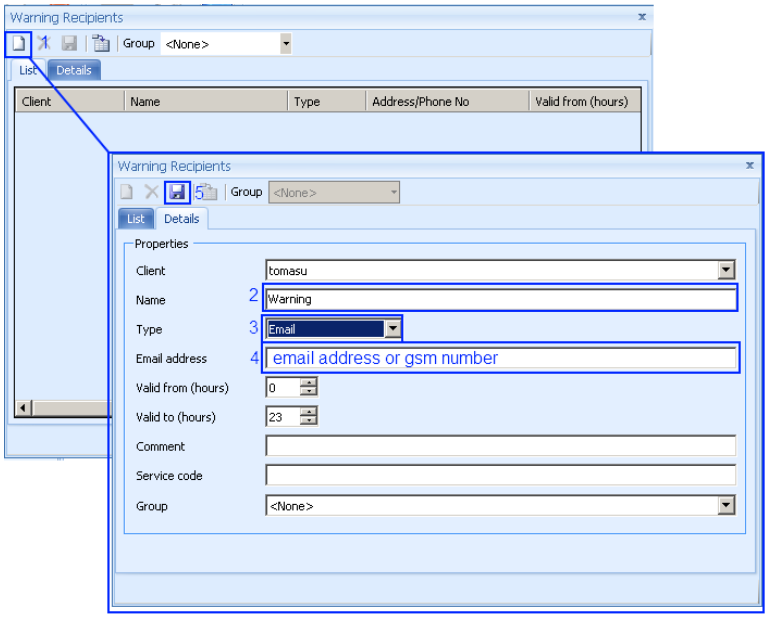
In warning policies setting of sending could be made:
Name – name of warning policy
Retry – number of retries when sending of warning is failed
Retry timeout – time between retries (in minutes)

Flood timeout – time (in minutes) to prevent exactly same warning. For example, if you set Flood timeout to 5 minutes, warning was sent and exactly the same warning(type, object, message, client, text and so on) will true to be sent, TAVL will ignore it. If after Flood timeout will come same warning as before, it will be sent.

Comment – you can leave a comment about new policy

Also you can choose to what group assign the policy.

In Recipients, see pic. 6.10, create new recipient (1), then write a name for it, decide on policy type (email or SMS) and write GSM number or email address (3, 4, 5). Then save Recipient



Pic. 6.10. Warning Recipients

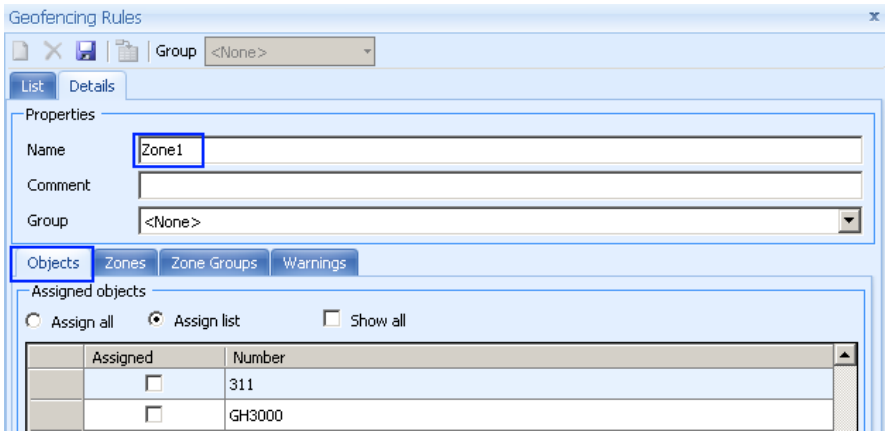
You can name recipient, choose how to inform it (SMS or Email), depending on how you will have to enter GSM number (i.e. +370XXXXXXXX) or email address. Valid hours show the time at which TAVL are allowed to send warning. To send SMS modem must be connected to server or server must use SMPP[6] protocol (we would not discuss this question further as it is not the purpose of this manual). Also it is possible to leave a comment or choose group to which add this recipient, recipient may be in more than one group. In toolbar it is possible to choose to create new ( ) or delete old ( ) recipient.

To create geofencing rules select rules in Events tab, see pic.6.11:

Pic. 6.11. Geofencing rules

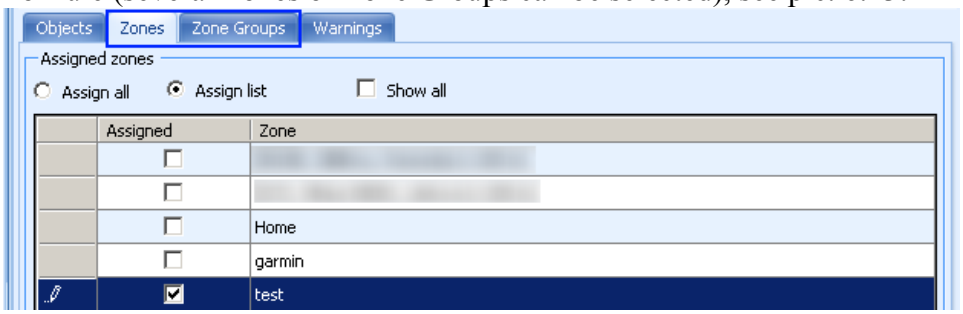
Geofencing rule creation, name it and asingn objects for this rule, see pic. 6.12:

6 SMPP – Short Message Peer-to-Peer



Pic. 6.12. Objects tab

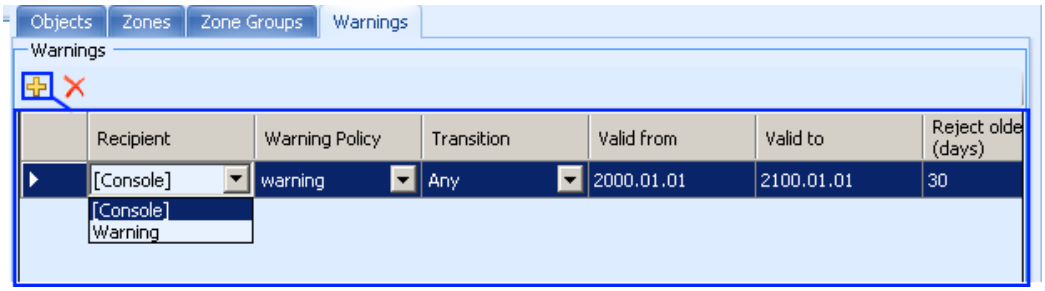
Select zones for rule (several Zones or Zone Groups can be selected), see pic. 6.13:



Pic. 6.13. Zones and Zone Groups tab

When objects, zones and zone groups are assigned for the rule, the last thing to do is to configure when warnings will be generated ('Warnings' tab, see pic. 6.14):

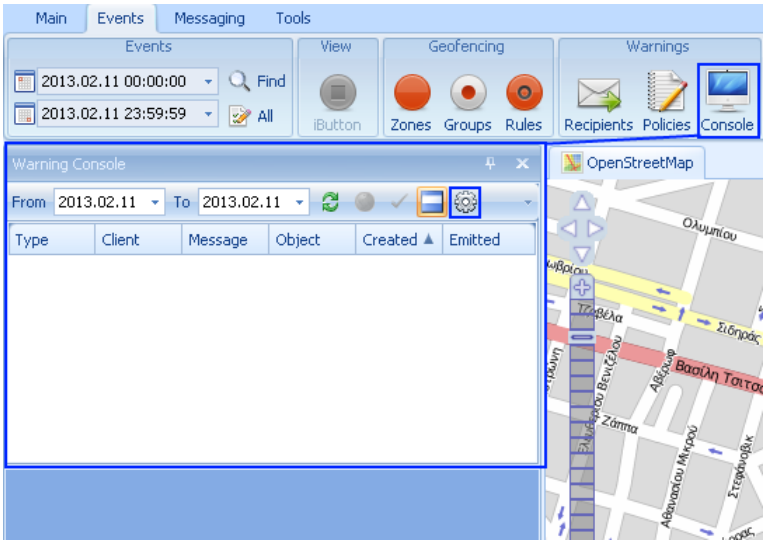
- **Recipient**: Select a recipient the geofencing warning will be delivered to. Select [Console] if you want to generate warnings in Warning Console (see pic. 6.15.).
- **Warning Policy:** Select a warning sending policy you created in previous steps
- **Transition:** Select when geofencing warnings will be generated:
  Any: A warning will be generated when vehicle either enters or leaves the geozone.
  Inside: A warning will be generated when vehicle enters geozone.
  Outside: A warning will be generated when vehicle leaves geozone
- **Valid from/Valid to:** Select rule validity time period
- **Reject older (days):** Do not generate geofencing alerts if received data is older than 30 days (vehicle has crossed geozones later than the defined allowed number of days)
- **Confirmation:** A confirmation will be required from the recipient when geofencing alert is delivered.



Pic. 6.14. Warnings tab

6.3 Warnings

To get warnings on events or geozone warnings Warning console must be configured. Select Events tab and click on Console icon. In console window pres on Gear icon to configure warning console, see pic. 6.15.

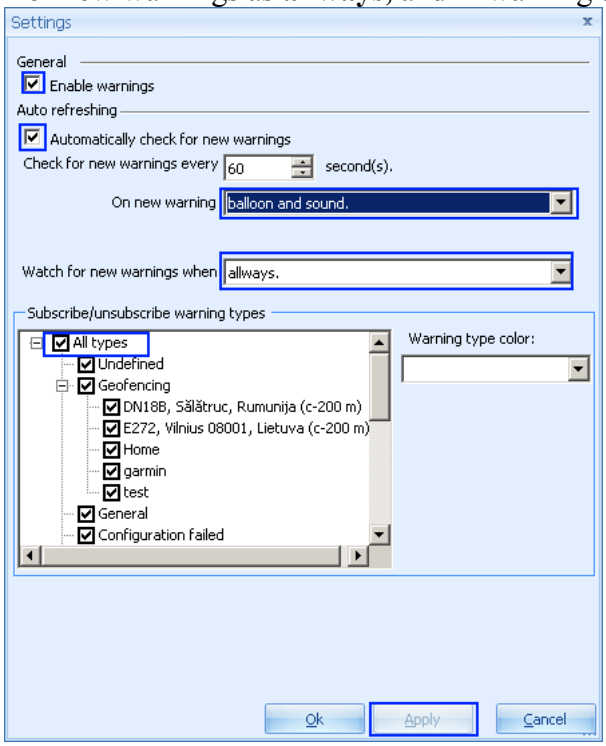


Pic. 6.15. Warning console

In settings window, see pic. 6.16, it is possible to:

- Enable/disable warnings
- Enable/disable automatical new warning check
- Select how information of warning will be presented (sound, balloon, sound and baloon)

To get warnings set Watch for new warnings as **allways,** and in warning types select All types



Pic. 6.16. Warning console settings

7. MESSAGING

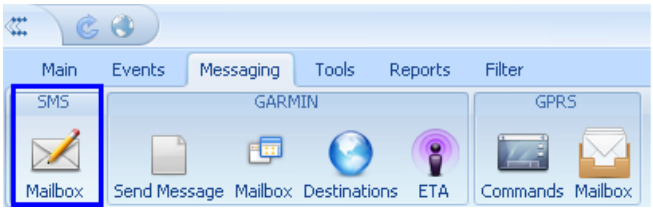
7.1 SMS[7]

SMS operations

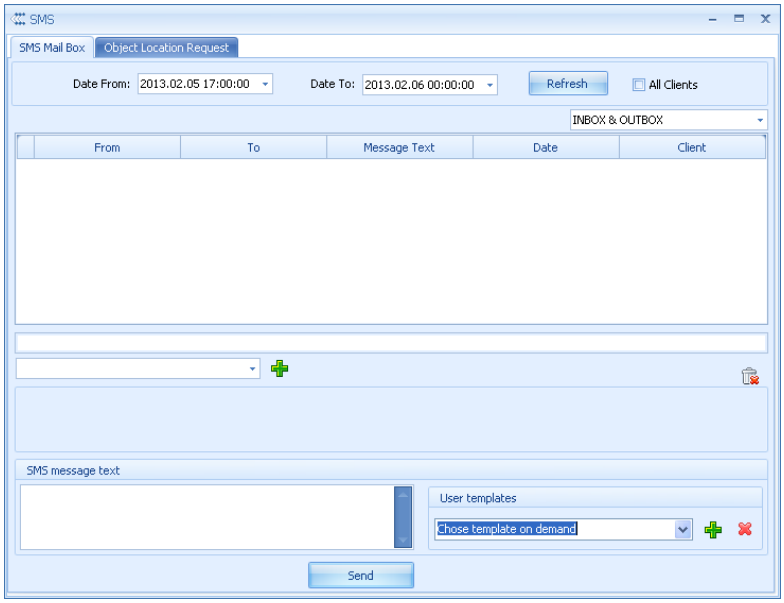
There are four types of SMS operations:

- Sending/receiving SMS messages to/from virtual drivers;
- Sending SMS user templates;
- Object location request;
- SMS predefined commands sending;

SMS mailbox can be found in "Messaging" section, see pic 7.1. SMS mailbox has two tabs: "SMS Mailbox" and "Object Location Request", see pic. 7.2.



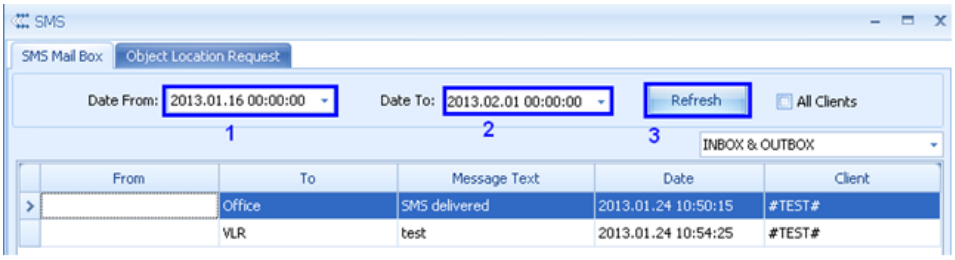
Pic. 7.1. SMS



Pic. 7.2. SMS Window

In "SMS Mailbox" tab received and sent messages can be reviewed using date filter. User can select date interval: "Date from", "Date to" and click "Refresh" for filtering SMS messages sent and received during that period, see pic. 7.3.

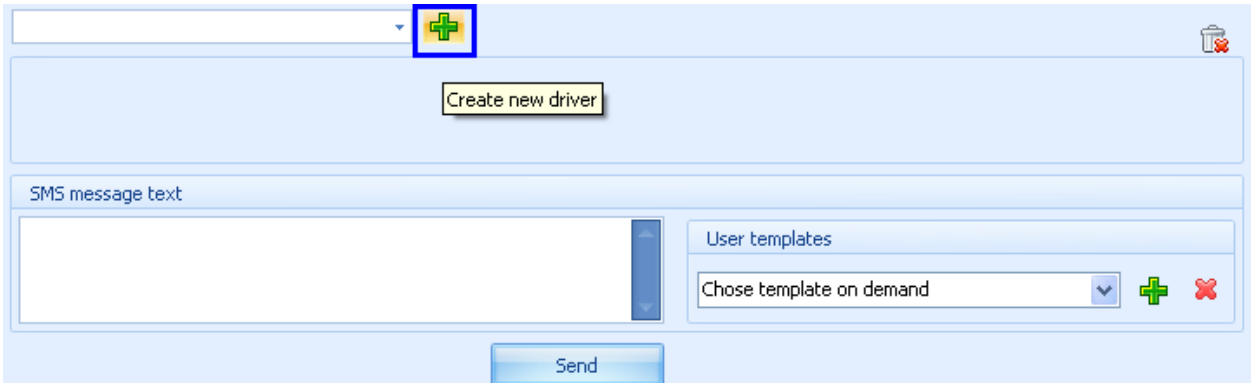
[7] This functionality is not free. For more information please contact your sales manager.



Pic. 7.3. SMS Messages (Inbox/Outbox)

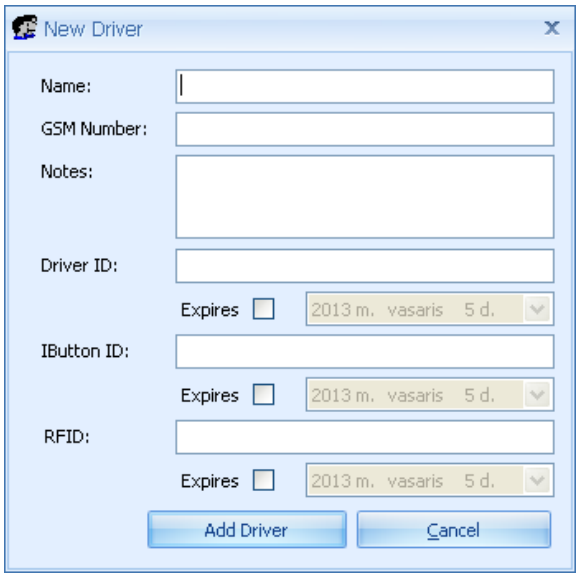
New messages also can be composed in SMS → SMS Mailbox window. In order to compose and send SMS message, virtual driver has to be created. Virtual driver is created by following steps:

1. Press green "+" sign in the middle of "SMS" window, see pic. 7.4.



Pic. 7.4. Driver's window creation invoke

2. "New driver" window will appear. There is other way to invoke this window, more information in 8 chapter. Mandatory fields that need to be filled in for SMS sending are "Name" and "GSM number". Fill in those fields and press "Add driver", see pic. 7.5.



Pic. 7.5. New Driver Creation Window

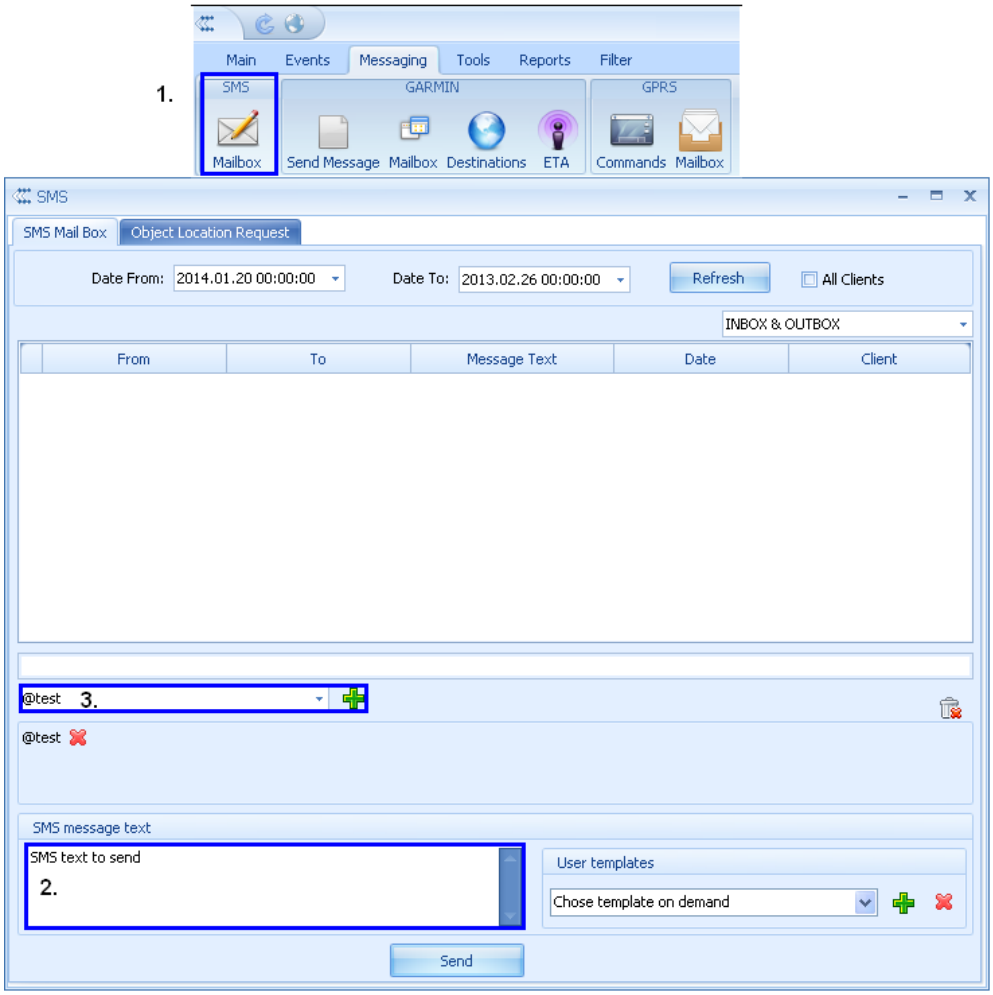
'Drivers' allows a user to create virtual SMS receivers. These receivers are used in following cases:

1. To enter a vehicle driver name and GSM number for a possibility to send SMS from TAVL application;
2. To enter a device number and GSM number for a possibility to send FM commands to the unit;
3. To enter object number or driver name and iButton ID or RFID for identification.

- Driver ID - vehicle tachograph number.
- IButton ID – vehicle Ibutton number.
- RFID – radio frequence identification number.

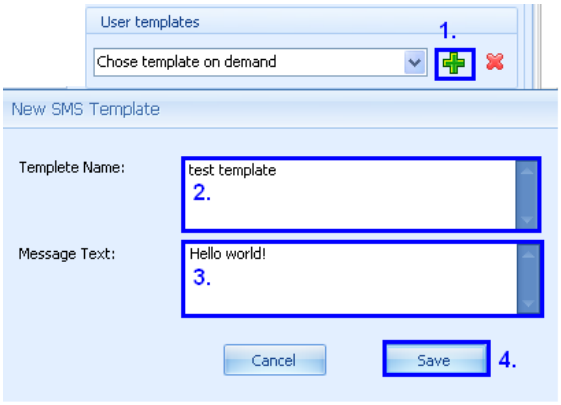
After virtual driver is created, it will be available in the virtual drivers list and you can compose and send SMS:

Select "SMS Mailbox" in "Messaging section", enter text that you want to be sent in "SMS Message Text" field and choose virtual driver from available list, see picture 7.6.



Pic. 7.6. Message Writting

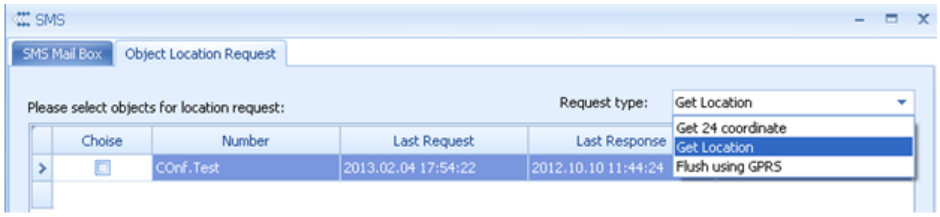
If same SMS text is used frequently, it can be saved as template. In order to create template, in "SMS Mailbox" window in "User templates" field click "+" sign and new window will pop-up. In this window enter "Template name", "Message text" and press "Save" – new User template will be created, see pic. 7.7:



Pic. 7.7. Template Creation Table

"Object Location Request" tab can be used to get location of objects, see pic. 7.8. Three request types are possible:

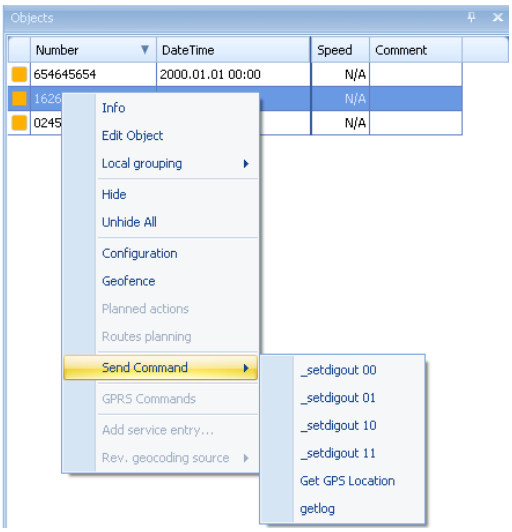
- Get 24 coordinate – requests object to send 24 coordinate SMS to server;
- Get Location – requests last stored GPS data to be sent to server;
- Flush using GPRS – requests all available records in FM series device memory, to be sent to server;



Pic. 7.8. SMS Request

After successful request new data about objects position will be available in TAVL application – position on map and data in "Objects" window.

"Send Command" allows user to send predefined commands to FM units, see pic. 7.9. Commands are entered on in database using Management interface. SMS commands can be sent to objects by clicking right mouse button on object while operating in "Objects" window. Between options that appear, "Send command" and command itself can be chosen. Sent commands and answers to these commands can be reviewed in "SMS Mailbox".



Pic. 7.9. SMS Commands

It is possible to send the same command to multiple objects. To send SMS command to more than one unit, the SMS command must be common to these units.

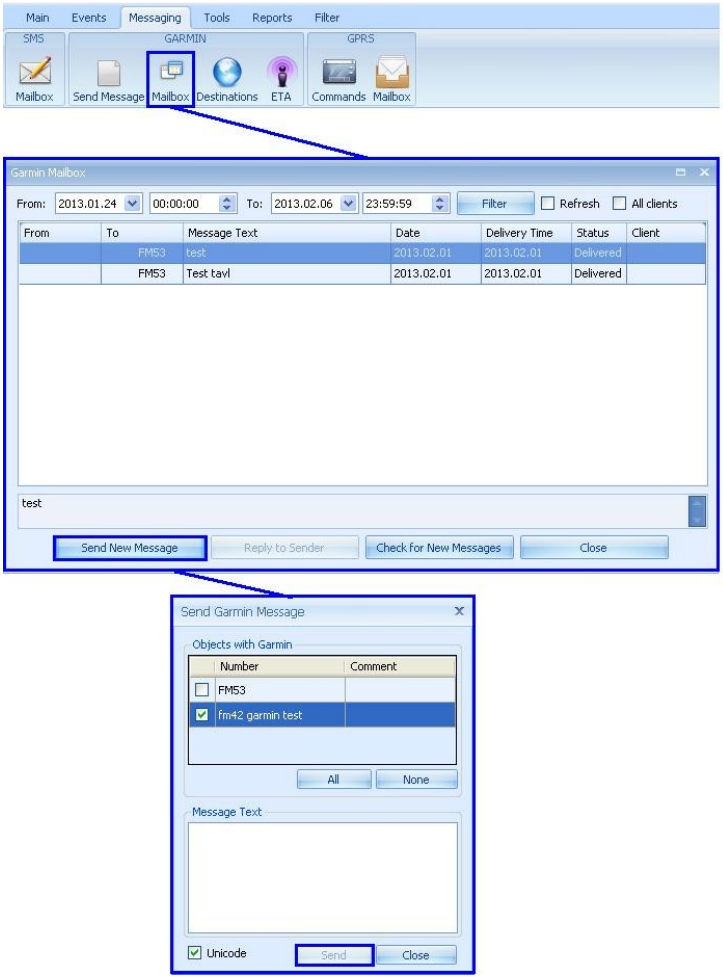
7.2 Garmin functionality

TAVL client application lets user to use the following features of GARMIN FMI:
1. Text messaging;
2. Destination message;
3. ETA request;

Text messaging

Text messaging feature lets user to communicate with driver (user that uses Garmin device) by sending text messages via GPRS. Message sending procedure is shown below:

Select "Garmin Mailbox" in "Messaging" tab – "Garmin Mailbox" window will appear, see pic. 7.10. In top of window you will have Date filter for filtering messages sent/received messages. In the bottom part of window click "Send New Message" – "Send Garmin Message" will pop-up. Here you can select one or multiple objects with Garmin devices and enter message text that will be sent to Garmin device.



Pic. 7.10. Garmin Text Messaging

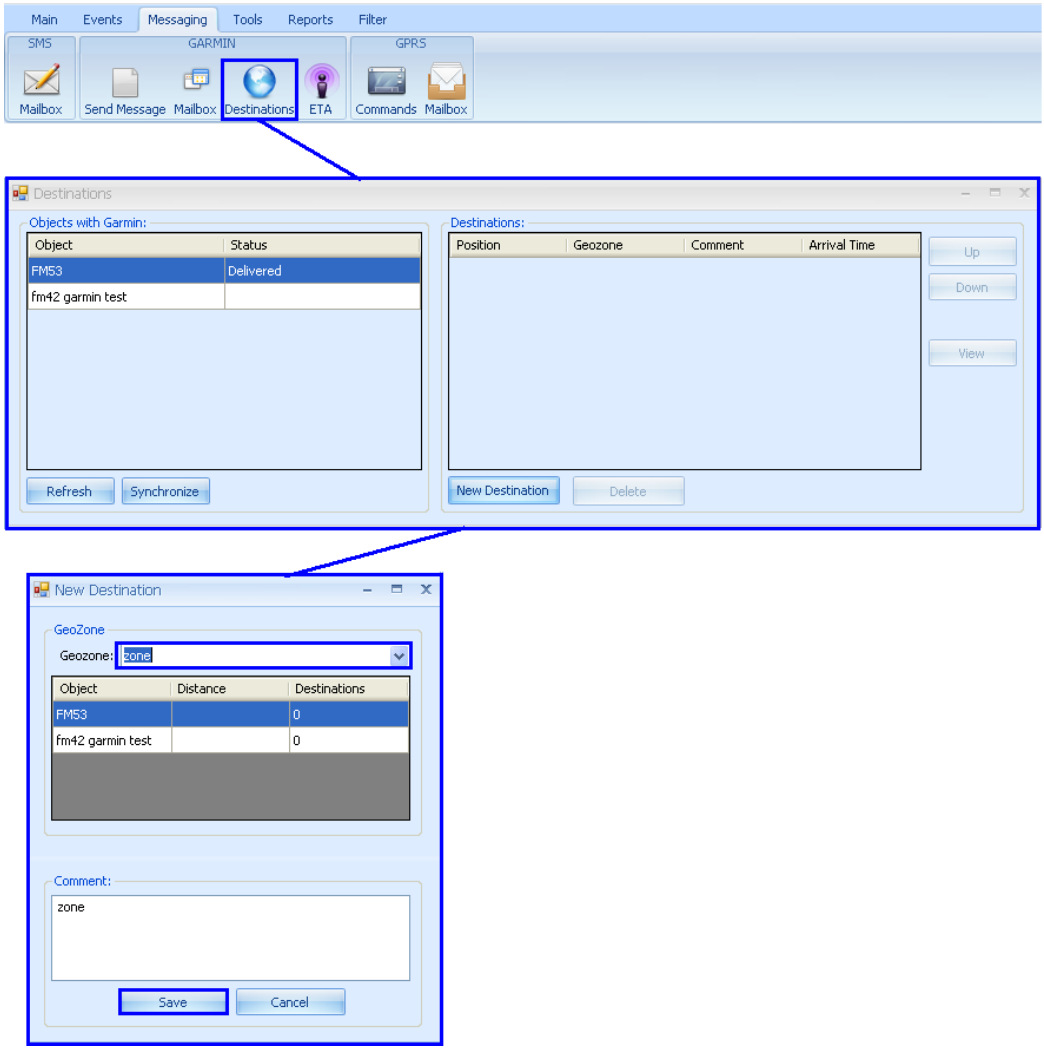
Destination message

Destination message is used to inform a driver of a new destination. When Garmin device receives a destination message from server it displays it as “Stop” to the driver and also gives the driver ability to start navigating to the “Stop” location.

New destination in TAVL client is represented as GeoZone so new GeoZone (as destination) has to be created first.

After at least one GeoZone is created, it can be sent to Garmin device as destination. Destination message sending procedure is shown below.

Select “Garmin Destinations” in “Messaging” tab - “Destinations” window will appear, see pic. 7.11. In the left side of this window you will see available devices – one of them has to be selected. In the right part of the window click “New Destination” button and you will get “New Destination” window. Here you need to select previously created GeoZone and optionally create a comment for this destination. After this click “Save” and new destination will be saved.



Pic. 7.11. Garmin Destination

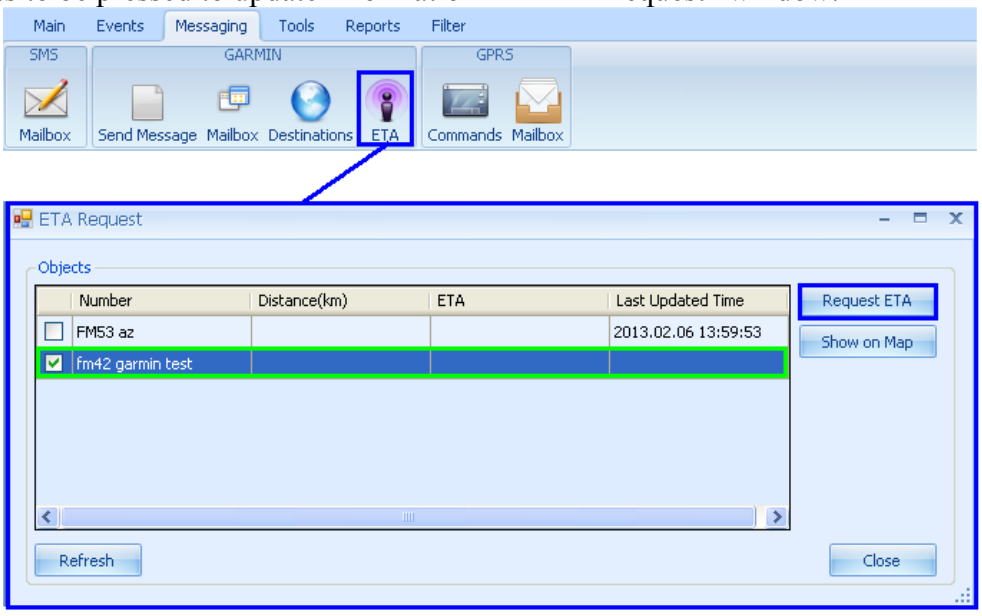
After saving destinations, “Synchronize“ button has to be pressed in “Destinations“ window in order to send selected destinations to Garmin device. “Refresh” button needs to be pressed to update information in “Destinations” window.

ETA request message

ETA (Estimated Time of Arrival) request message is used when user wants to know expected arrival time to currently active destination in Garmin device and distance (in meters) from current object location to currently active destination. ETA requesting in TAVL client interface is shown below.

Click "ETA" in "Messaging" tab - "ETA Request" window will appear, see pic. 7.12. Available objects will be shown in this window – select one or multiple devices and press "Request ETA" button. After a while you will get information about estimated time of arrival and distance from object to current destination in Garmin device.

"Show on Map" button can be clicked in order to see current position of the object. "Refresh" button needs to be pressed to update information in "ETA Request" window.

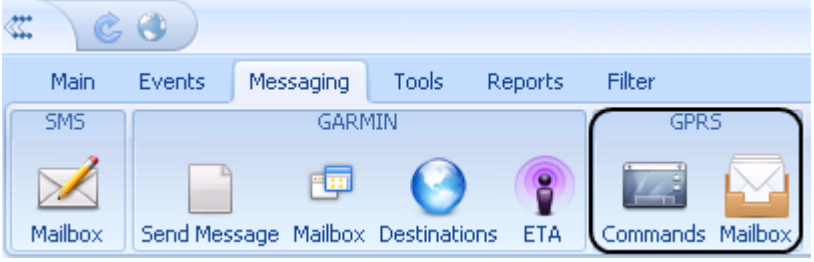


Pic. 7.12. Garmin ETA

GPRS

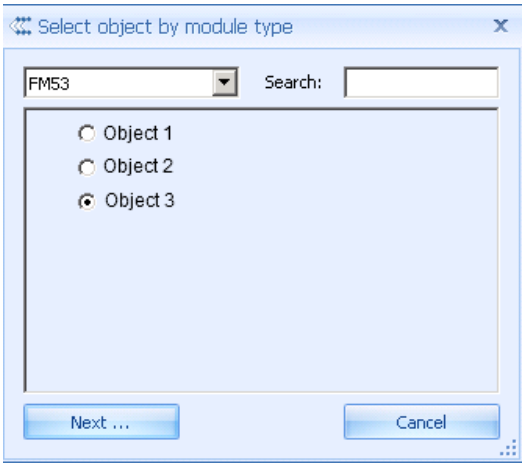
It is possible to send GPRS commands to FM5300 using TAVL application. When FM5300 sends records periodically to a server, a message could be sent from the server and FM5300 will reply to it.

GPRS commands list can be found in Messaging tab -> GPRS window (pic. 7.13)



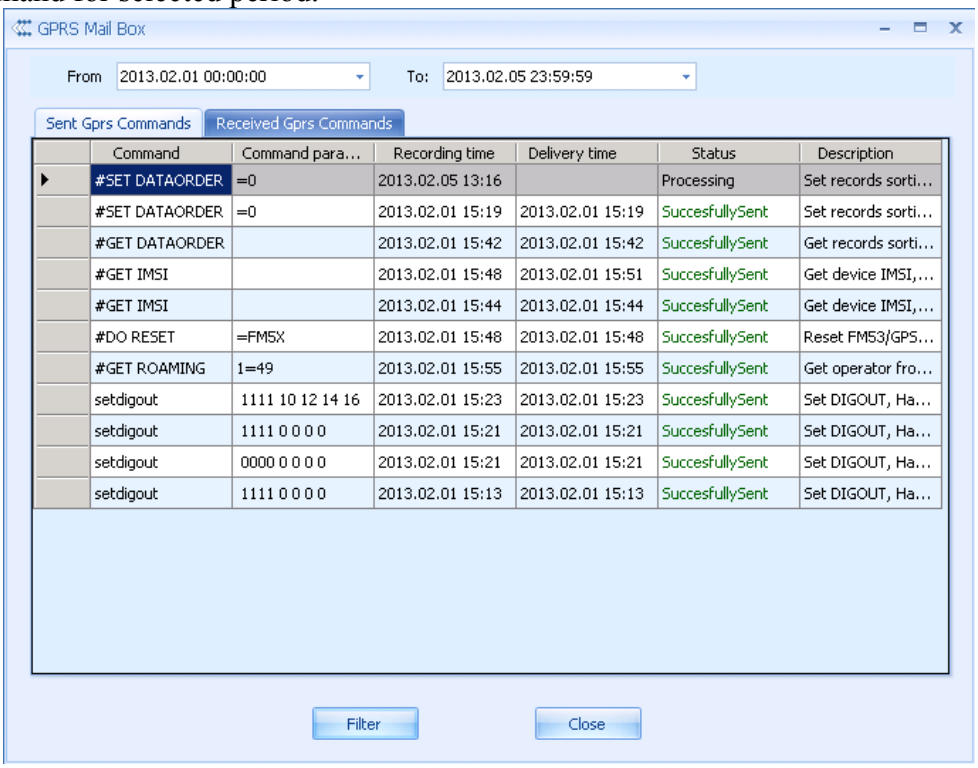
Pic. 7.13. GPRS commands menu

To send GPRS command need press "Commands" icon (Pic. 7.14), select object to which need send command (pic. 7.15), press "Next", select command from the list and press "Send". Available GPRS command list and description show in table 2.



Pic. 7.14. Object and module type window

GPRS mail box, see pic. 7.15, allow monitor situation and check history about sent and received GPRS command for selected period.



Command	Command para...	Recording time	Delivery time	Status	Description
#SET DATAORDER	=0	2013.02.05 13:16		Processing	Set records sorti...
#SET DATAORDER	=0	2013.02.01 15:19	2013.02.01 15:19	SuccesfullySent	Set records sorti...
#GET DATAORDER		2013.02.01 15:42	2013.02.01 15:42	SuccesfullySent	Get records sorti...
#GET IMSI		2013.02.01 15:48	2013.02.01 15:51	SuccesfullySent	Get device IMSI,...
#GET IMSI		2013.02.01 15:44	2013.02.01 15:44	SuccesfullySent	Get device IMSI,...
#DO RESET	=FM5X	2013.02.01 15:48	2013.02.01 15:48	SuccesfullySent	Reset FM53/GPS...
#GET ROAMING	1=49	2013.02.01 15:55	2013.02.01 15:55	SuccesfullySent	Get operator fro...
setdigout	1111 10 12 14 16	2013.02.01 15:23	2013.02.01 15:23	SuccesfullySent	Set DIGOUT, Ha...
setdigout	1111 0 0 0 0	2013.02.01 15:21	2013.02.01 15:21	SuccesfullySent	Set DIGOUT, Ha...
setdigout	0000 0 0 0 0	2013.02.01 15:21	2013.02.01 15:21	SuccesfullySent	Set DIGOUT, Ha...
setdigout	1111 0 0 0 0	2013.02.01 15:13	2013.02.01 15:13	SuccesfullySent	Set DIGOUT, Ha...

Pic. 7.15. GPRS commands mail box

Note: FM5300 has to be connected to the server in order to receive commands.

Table 2 . GPRS commands and description

Command	Description
#GET DATAORDER	Get info about records sorting parameter
#SET DATAORDERX=Y	Set records sorting parameter, X – profile, Y – value (0/1).
#GET RECTO	Get info about records refresh timeout parameter
#SET RECTO=X	Set records refresh parameter, X = records refresh timeout

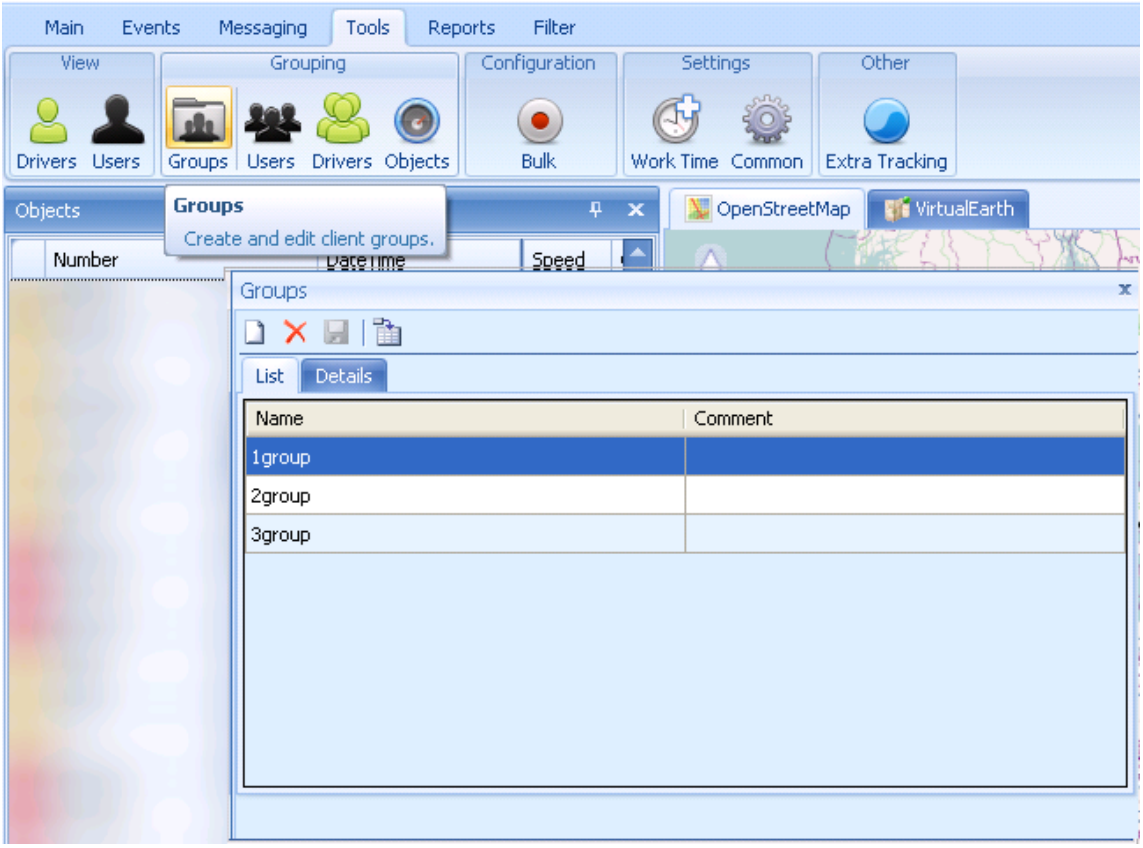
#GET VERSION	Receive firmware version
#GET NETWORK	Get GSM operator to which device is connected
#GET IMSI	Get IMSI of the device
#GET OUT	Get DOUT values
#DO REPORT	Save a record
#DO RESET=XXX	Reset FM5300 or GPS module, XXX – FM5X or GPS
#GET ROAMINGX=Y	Get operator from the list of a certain profile, X – profile, Y – operator number in a list
#SET ROAMINGX=Y,Z	Set operator to the list of a certain profile, X – profile, Y – operator number in a list, Z – operator code
#GET REMIPX	Get IP and port number from the configuration of a certain profile, X – profile
#SET REMIPX=Y:Z	Set IP and port number to the configuration of a certain profile, X – profile no, Y – IP or domain, Z – port number
#GET AUPX	Get APN, user login and password from the configuration of a certain profile, X – profile
#SET AUPX=Y,Z,W	Set APN, user login and password to the configuration of a certain profile, X – profile, Y – APN, Z –, user login W - password
#GET REPRTX	Get MinPeriod from the configuration of a certain profile, X – profile
#SET REPRTX=Y	Set MinPeriod to the configuration of a certain profile, X – profile, Y – MinPeriod value
#GET REPDISTX	Get MinDistance from the configuration of a certain profile, X – profile
#SET REPDISTX=Y	Set MinDistance to the configuration of a certain profile, X – profile, Y – MinDistance value
#GET REPANGX	Get MinAngle from the configuration of a certain profile, X – profile
#SET REPANGX=Y	Set MinAngle to the configuration of a certain profile, X – profile, Y – MinAngle value
#GET SENDPERIODX	Get SendPeriod from the configuration of a certain profile, X – profile
#SET SENDPERIODX=Y	Set SendPeriod to the configuration of a certain profile, X – profile, Y – SendPeriod value
#GET REPMRX	Get MinRecords from the configuration of a certain profile, X – profile
#SET REPMRX=Y	Set MinRecords to the configuration of a certain profile, X – profile, Y – MinRecords value
#GET IBTNX	Get iButton value from the configuration of a certain profile, X – profile
#SET IBTNX=Y,Z	Set iButton value to the configuration of a certain profile, X – profile, Y – number on the list, Z – iButton value
#GET EXTERR	Get extended errors value
#SET EXTERR=X	Set extended errors value, X – 0/1
getstatus	Modem Status information
getweektime	Current device time, Day of Week and amount of minutes passed since start of week
getops	List of currently used and available GSM operators
readops#	Emergency gsm operator readout from active profile # - 1,2,3 1 – operators [1-20] 2 – operators [21-40] 3 – operators [41-50]
getnmeainfo	Nmea error debug sms

getcfgtime	Date and Time of last successful configuration
getgps	Current GPS data and time
loadprofile#	Load specified profile into RAM Engine Profile. # - number of profile to load
cpureset	Reset CPU
resetallprof	Reset all FLASH profiles to default profile
getver	Device / Modem / Code version information
getinfo	Device runtime system information
deleterecords	Delete all records saved on FLASH
getio	Readout digital inputs and outputs, analog inputs
readio #	Readout input value according entered ID, # - ID value
setdigout XXXX Y1 Y2 Y3 Y4	Set digital outputs 0 – OFF, 1 – ON Y1 – timeout for DO1 Y2 – timeout for DO2 Y3 – timeout for DO3 Y4 – timeout for DO4
getparam #	Readout parameter value according entered ID. # - ID value.
setparam # #	Set parameter value according entered ID and Value. 1.# - ID value. 2.# - New Parameter Value
flush #,#,#,#,#,#,#	Initiates all data sending to specified target server 1.# - IMEI 2.# - APN 3.# - LOGIN 4.# - PASS 5.# - IP 6.# - PORT 7.# - MODE (0-TCP/1-UDP)
sn x [x=0;1]	Enable/disable static navigation
banlist	Banlist information
crashlog	Crash log information
delete_all_sms	Delete all read SMS
braminfo	BatRam info
getgnss	Current GNSS information

8. Tools

8.1 Grouping[8]

TAVL server administrator can allow or deny 'Power User' to use Grouping feature. This feature can define that certain object or driver belongs to certain group and the simple user, which belongs to the same group can see only those objects, while Power User can see all available objects, see pic. 8.1.



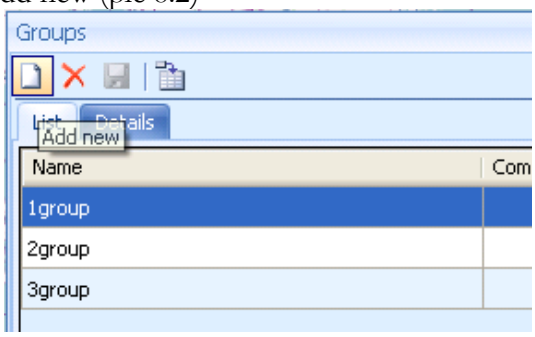
Pic. 8.1. Grouping

Like you can see above grouping feature have several dedicated buttons: 'Groups', 'Users', 'Drivers' and 'Objects'. Each button function is activated by mouse click on it.

Main function is 'Groups' - it allows creating dedicated groups for each user, to which can be attached users, drivers or/and objects.

Simple steps to create new groups:

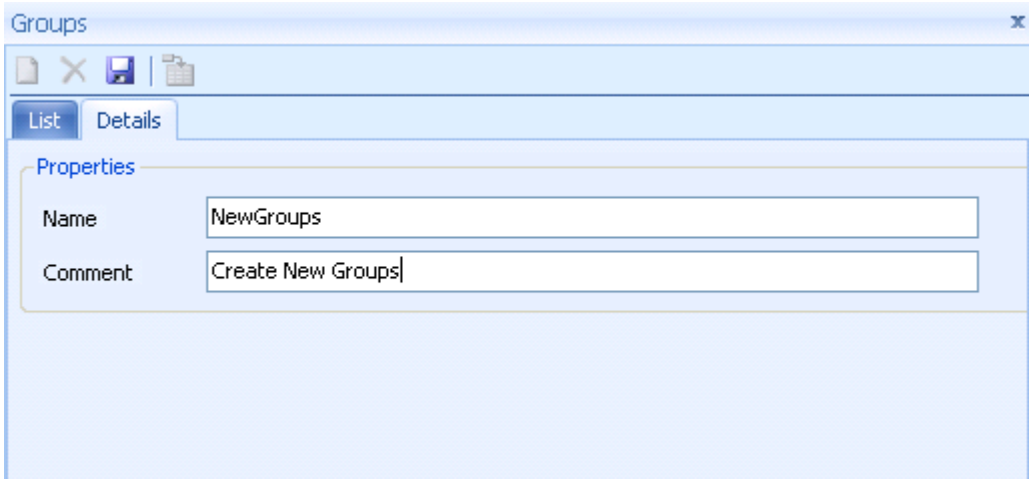
1) Grouping > Groups > Add new (pic 8.2)



Pic. 8.2. Add new Group

[8] Not for simple user with Simple right, for more information contact sales manager.

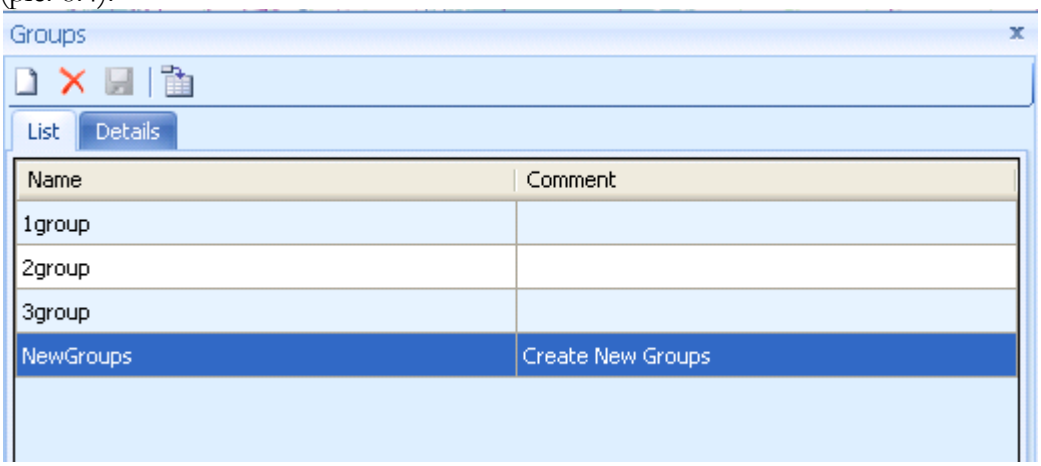
2) And you will jump to table 'Details' where you must type information about your new group (pic. 8.3):



Pic. 8.3. New Group Description

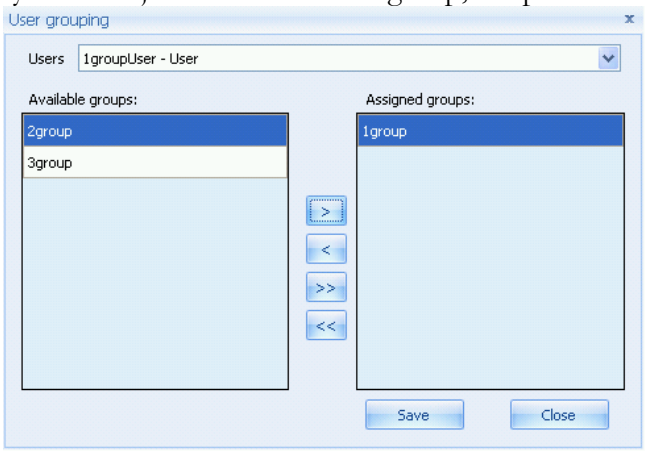
3) Push 'Save' icon.

4) Result (pic. 8.4):



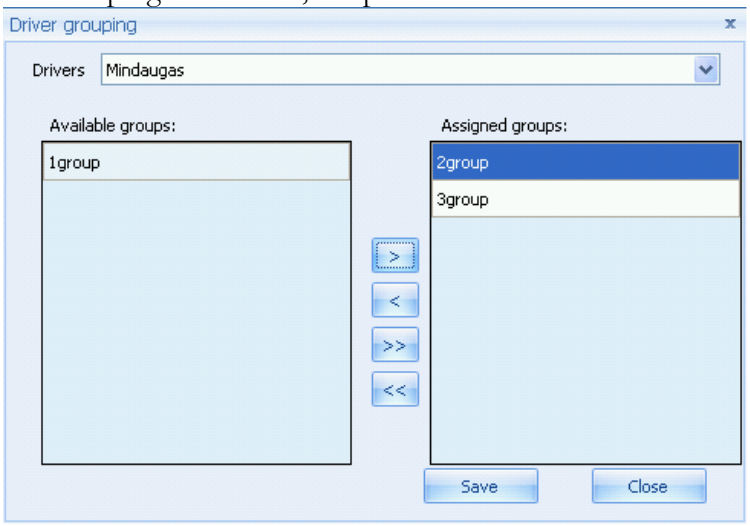
Pic. 8.4. Created Groups

First decide which created users will be available for a User. Power User is allowed to create groups. Each user can be assigned to different groups. Power User can create a simple user logins for TAVL application (click Users button in the toolbar and select 'New'). Each simple user can be assigned to different groups. User grouping is available from Tools -> Grouping -> Users. The new user will be able to see only those objects that match his group, see pic. 8.5.



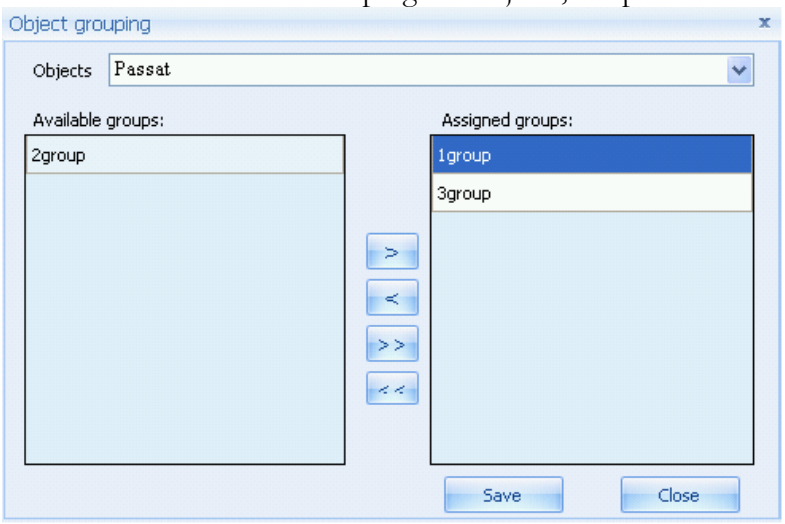
Pic. 8.5. User Grouping

TAVL application can also store a driver list with assigned GSM numbers and it is possible to communicate with those drivers using SMS (see SMS Communication chapter for more information). Just like objects, each driver can be assigned to different groups too. Driver grouping is available from Tools -> Grouping -> Drivers, see pic. 8.6.



Pic. 8.6. Driver Grouping

Power User is allowed to create groups. Each Object can be assigned to different groups. Select objects one by one and assign a group to it. Note, that more than one group is available for one object. Object grouping is available from Tools -> Grouping -> Objects, see pic. 8.7.

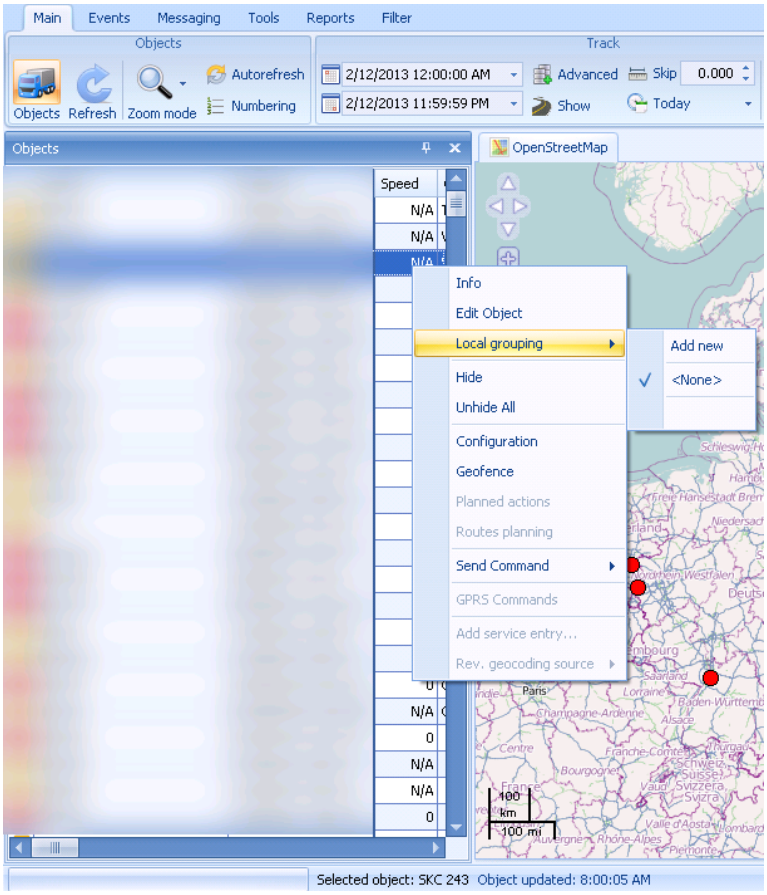


Pic. 8.7. Object Grouping

Local grouping

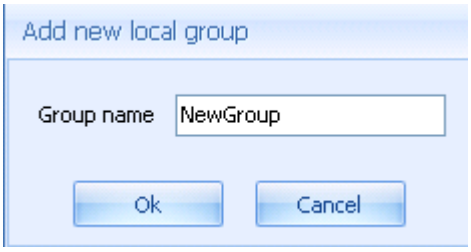
Local grouping - feature dedicated for 'Simple User'. Function which is used in local mode. Local grouping gives possibility for user esasy create group and attache to it one by one objects from object list.

To add new group move mouse on the object which you like and push right mouse button on it and you will see available functions list then go Local grouping > Add new, see pic. 8.8.



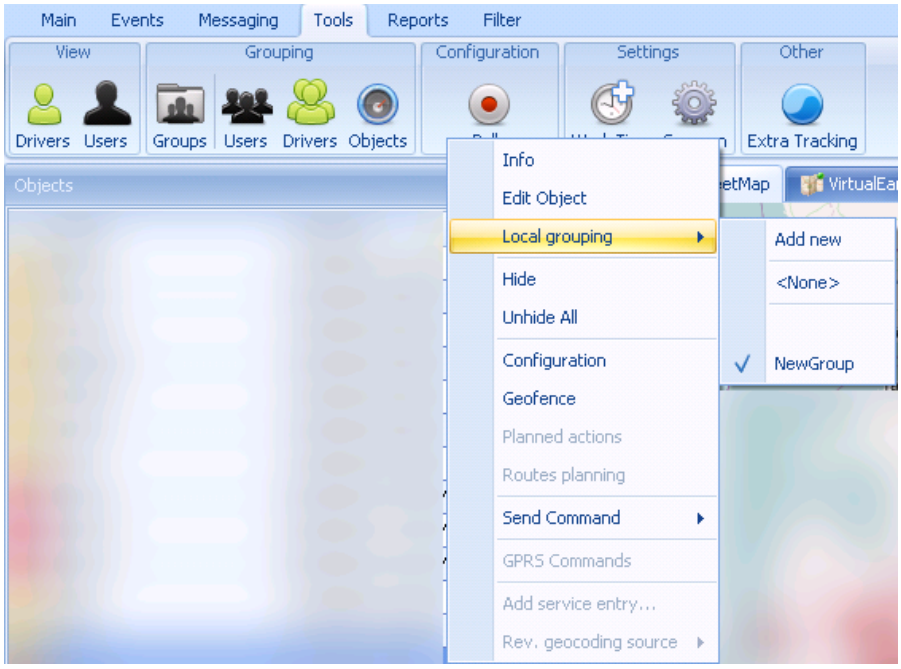
Pic. 8.8. Local Grouping

New window with empty field pops-up where you can fill in group which you want to add, see pic. 8.9.



Pic. 8.9. Add new local group

And then new group will appear in available group list, see pic 8.10. This group will be already attached to object which you choice



Pic. 8.10. New Local Group

When group is created it can be attached to all objects one by one.

To 'Delete" group uncheck it in all objects and then it will be not in use group will be erased automatically. If group is dedicated minimum to one object it can not be deleted.

8.2 Configuration

Module Configuration

TAVL application has an interface for remote FM configuration via GPRS and SMS. Note, that current SMS username and password saved on FM device configuration must match values entered on TAVL database, else all configuration attempts will result failure. Remote configuration can also be done by sending simple text SMS to the module with special commands (see FMxx user manual for more details). When you want to send module configuration information through GPRS, eache time you will also send one SMS. If you want to get this TAVL features: GPRS[9] comands or SMS [10]sending form TAVL, please contact with your sales representative.

In the object list right-click on the object and choose 'Configuration', see picture 8.11.

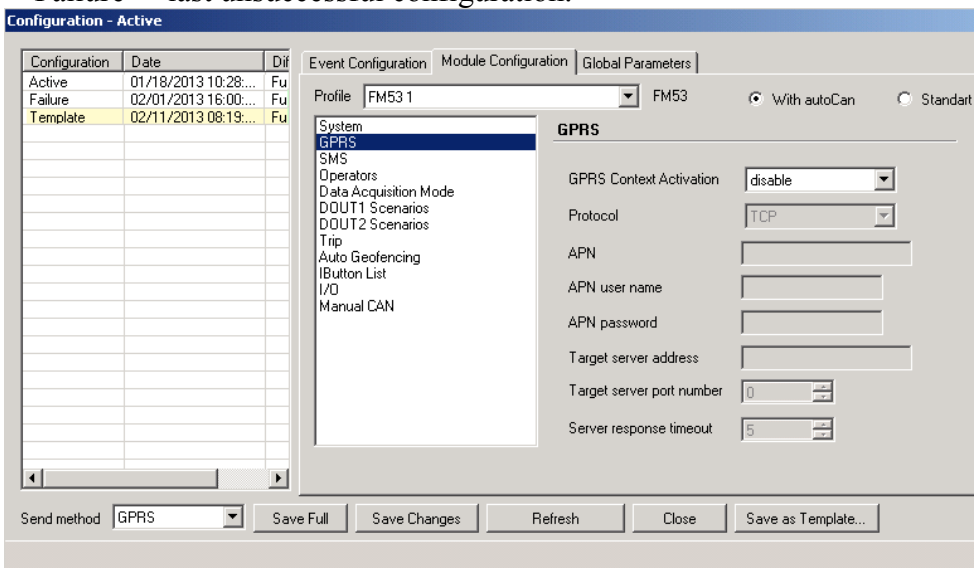
On the left side of configuration windows user can see a list of available configurations for module with different status. These can be:

- 'Active' – currently available configuration. Note, that when new object is added, server does not receive configuration from FM device and all fields are left blank. 'Active' configuration will show currently used values only when FM device is configured with TAVL application.
- 'Template' – this is a template configuration. 'Template' settings are not stored in FM device, they are stored on server. A selected configuration can be saved as template for one or mode modules.
- 'New' – new configuration is displayed when new settings are about to be sent to the device.

[9] GPRS funtionality not free. For more information please contact your sales manager.

[10] SMS functionality is not free. For more information please contact your sales manager.

- ‘Synchronizing’ – a configuration that is queued for update. When saving new settings (configuration), new configuration is renamed to ‘Synchronizing’ until process is successful or time-out expires. If configuration is successful, then ‘Synchronizing’ is renamed to ‘Active’ and new data can be seen indicating when it became available. If configuration is not successful, ‘Synchronizing’ is renamed to ‘Failure’.
- ‘Failure’ – last unsuccessful configuration.



Pic. 8.11. Device Configuration

The right side of configuration windows has three parts - ‘Event Configuration”, ‘Module Configuration’ and ‘Global Parameters’. ‘Module Configuration’ and ‘Global Parameters’ have same interface as FMxx configurator described in particular device FMxx User Manual.

The bottom of configuration windows consists of tools for configuration:

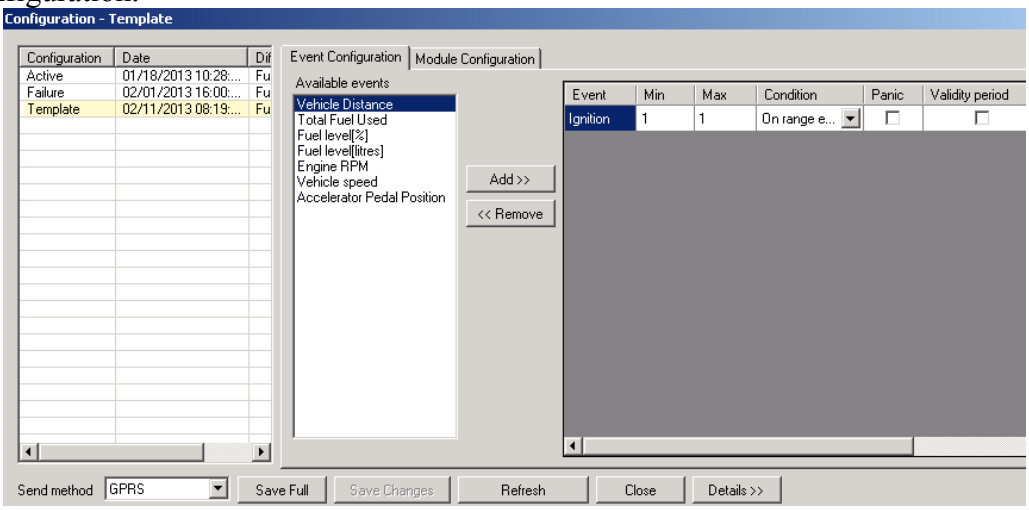
- ‘Send Method’ field identifies how configuration should be sent to FM device – by GPRS, binary SMS, or both.
- ‘Save Full’ button saves selected configuration as ‘New’ and renames it to ‘Synchronizing’ when server tries to contact module.
- ‘Save Changes’ only saves new changes since last active configuration, but have in mind, that first configuration for module on TAVL always has to be saved using ‘Save Full” option.
- ‘Refresh’ refreshes available configuration list. This does not read current configuration from module, only refreshes status of all available configurations.
- ‘Save as Template’ saves currently selected configuration as template for one or more objects.

1. Event Configuration

'Event Configuration' menu allows configuring events for IO elements, see pic. 8.12. In the picture a sample is shown how to configure Ignition event that will generate event when Digital Input will enter High level.

Choose an IO element from available in 'Available Events' window (more can be added by enabling IO elements in database) and click 'Add'. Enter minimum and maximum values in the fields 'Min' and 'Max' – these define range. ‘Condition‘ is same parameter as IO ‘Generate Event‘ parameter and has 5 different selections: ‘On range exit’, ‘On range entrance’, ‘On both’,

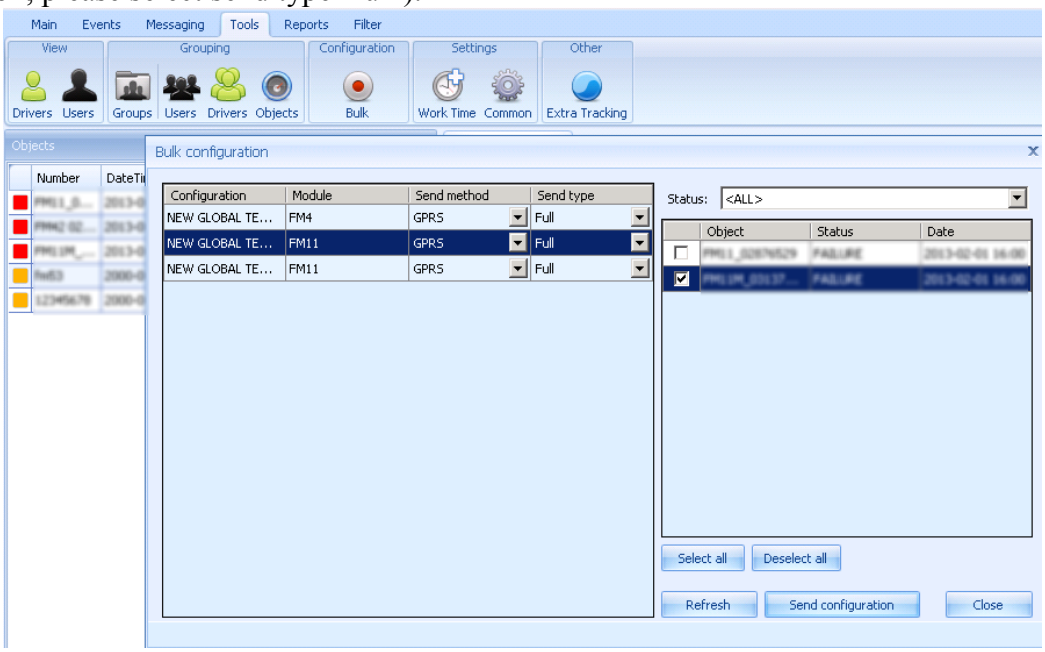
'Monitoring', 'Hysteresis'. Event can be set as Panic Event. Also, Validity period of event can be set on configuration.



Pic. 8.12. Event Configuration

8.3 Bulk configuration

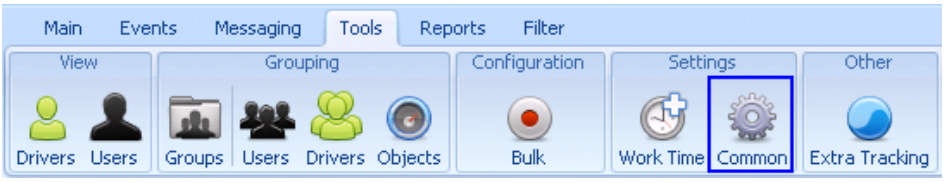
TAVL configuration can be performed for several objects at the same time by TAVL administrators and Power users. Bulk configuration is available in Tools -> Bulk Configuration, see picture 8.13. Bulk configuration can be created, edited or deleted by right-clicking in 'Bulk Configuration' window and selecting an appropriate action. The same rules apply to configuration methods as in simple configuration: there are tree available configuration send methods: GPRS, SMS and GPRS or SMS. There are two send types available to send: full configuration or only difference between bulk and native module configuration (native module configuration should be performed using TAVL application. If you are not sure if module were configured using TAVL application, please select send type 'Full').



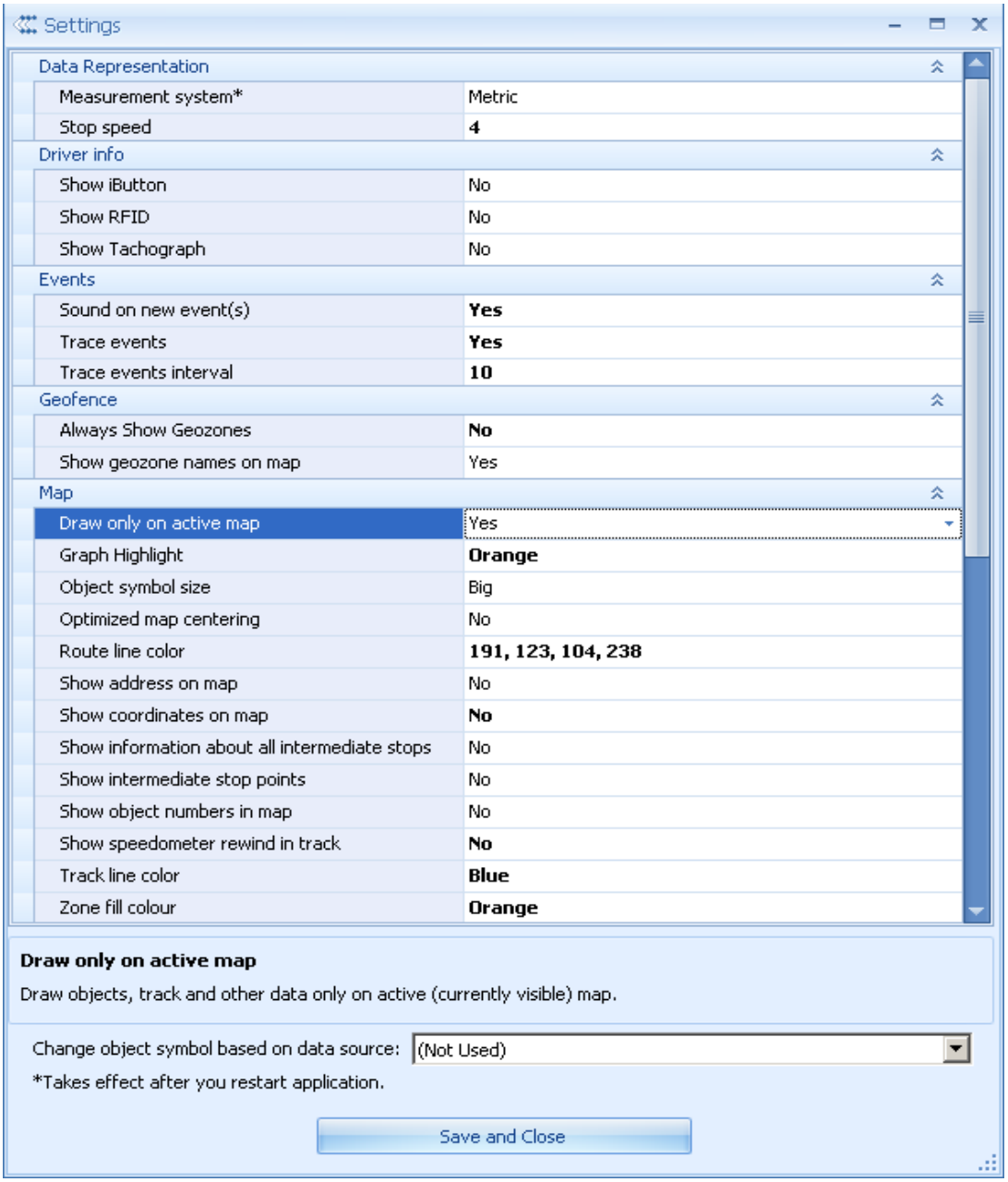
Pic. 8.13. Bulk Configuration

8.4 Settings

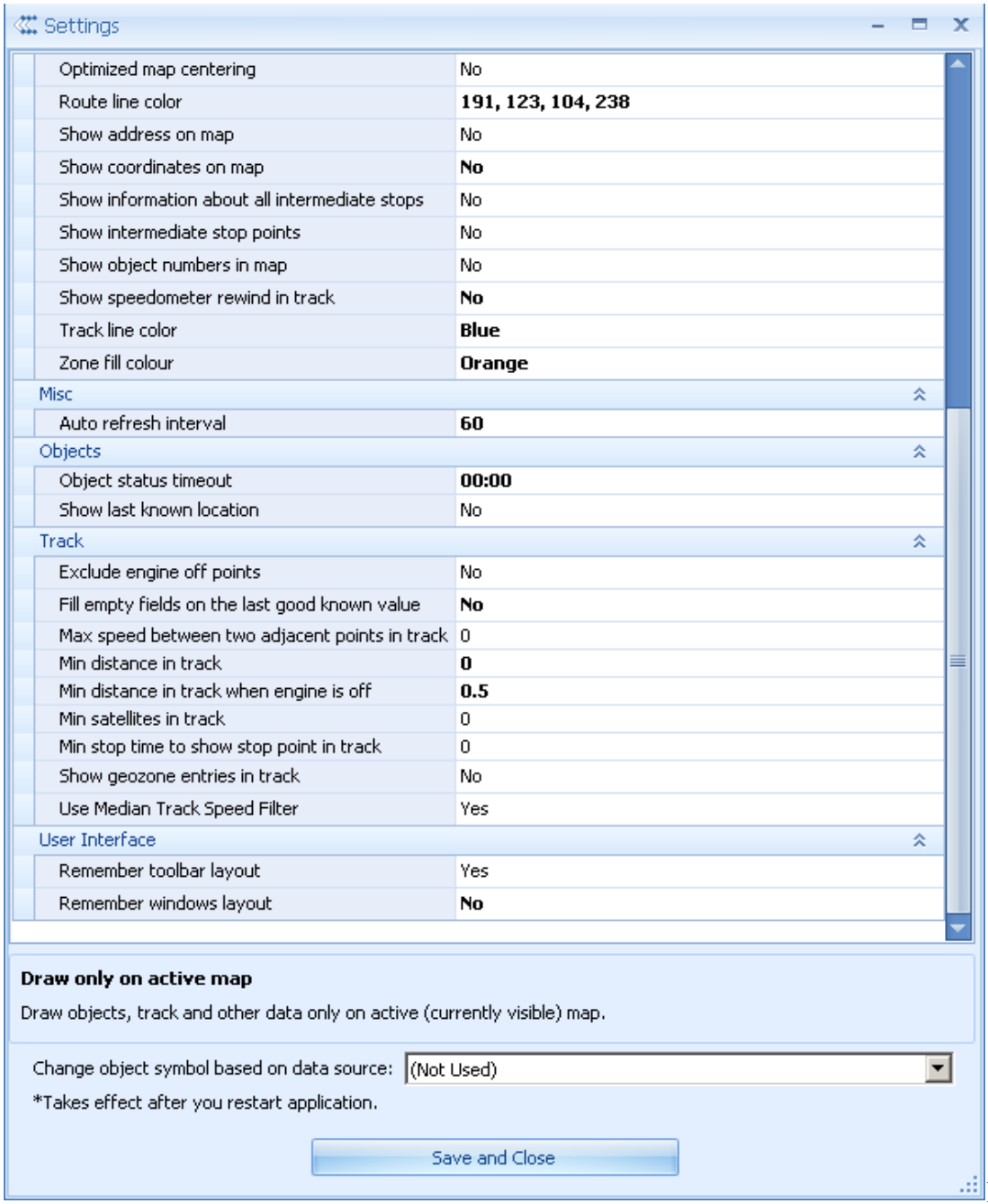
Settings window allows you to customize TAVL applications settings. In the Tools -> Settings, see pic. 8.14 and pic. 8.15., menu choose 'Common' button or hit F9 on keyboard to configure parameters.



Pic. 8.14. Settings


Settings
Data Representation
Measurement system* Metric
Stop speed 4
Driver info
Show iButton No
Show RFID No
Show Tachograph No
Events
Sound on new event(s) Yes
Trace events Yes
Trace events interval 10
Geofence
Always Show Geozones No
Show geozone names on map Yes
Map
Draw only on active map Yes
Graph Highlight Orange
Object symbol size Big
Optimized map centering No
Route line color 191, 123, 104, 238
Show address on map No
Show coordinates on map No
Show information about all intermediate stops No
Show intermediate stop points No
Show object numbers in map No
Show speedometer rewind in track No
Track line color Blue
Zone fill colour Orange
Draw only on active map
Draw objects, track and other data only on active (currently visible) map.
Change object symbol based on data source: (Not Used)
*Takes effect after you restart application.
Save and Close

Pic. 8.14. Common settings first part



Pi

c. 8.15. Common settings second part

Following parameter can be edited:

1) Data Representation
   a) Measure system – allows to choose measurement system for metric or imperial.
   b) Stop Speed – maximum speed value when object is treated as not moving. This is used when coordinates error occurs and object is displayed on new location. If speed will not be exceeded configured value, object will not change its location.
1) Driver info menu allows choosing either to show or not driver information in Objects window. Driver info can be acquired with:
   a) iButton;
   b) RFID;
   c) Tachograph.

2) Events.
   a) Sound on new event – enabled or disabled sound used for warnings
   b) Trace event - sets if program should automatically check for new events.
   c) Trace events interval - sets the period in seconds for new events checking.
3) Geofence
   a) Always Show Geozones - let you choose to show or not Geozones on map.
   b) Show geozone names on map – sets whether to show or not geofence names on map. If several geofence zones were created without names, it will be numbered.
4) Map
   a) Draw only on active map – sets if track should be drawn on currently active map only or on all available maps.
   b) Object symbol size – determines object symbol size on map. It can be: Small, Big or Modern.
   c) Optimized map centering – if you will choose yes, map will be centered only when object is not visible in currently displayed map otherwise map will be centered always when you select object in object window.
   d) Route line color – sets route line color.
   e) Show address on map – lets you choose either to display address in pop up window next to object symbol.
   f) Show coordinates on map - lets you choose either to display coordinates in pop up window next to object symbol.
   g) Show geofence entries in track – sets either to show or not symbol on track when object enters or exit geofence zone.
   h) Show information about all intermediate stops – allows to display information in pop up window about stops in track where object was considered as not moving
   i) Show intermediate stop point – allows to display stops in track where object was considered as not moving
   j) Show object numbers on map – let you choose either to display or not object numbers on map even then object is not selected.
   k) Track line color – sets track line color
   l) Use Median Track Speed Filter – sets to use median filter to average speed while using track play function. For example if your vehicle will leave tunnel, where GPS does not work, then you will see that speed after vehicle leaves tunnel suddenly jump very high and right her Median Track Speed Filter block this speed jump.
   m) Zone fill color – lets you choose geozone, which is displayed on map, filling color.
5) Misc
   a) Auto refresh interval - allows to set time interval in seconds to refresh the object window and map automatically.
6) Objects
   a) Object status timeout – set period of time which define no data receiving period. After this period object status color changes if no data is received during his time
   b) Show last known locatio – show last object location, when last object message did not sent location.
7) Track
   a) Exclude engine off points – if you turn off this settings function and your vehicle engine will be turned off, GPS will still work and register new movement point, but if you turn on this function, it will exclude all those GPS points while engine is off.
   b) Max speed between two adjacent points in track – program automatically calculates speed between two adjacent points (distance between points divided by elapsed time). If speed will be greater than this parameter, second point will not be shown in track.
   c) Min distance in track – if distance between points in track will be shorter than this parameter set second point will not be shown in track.

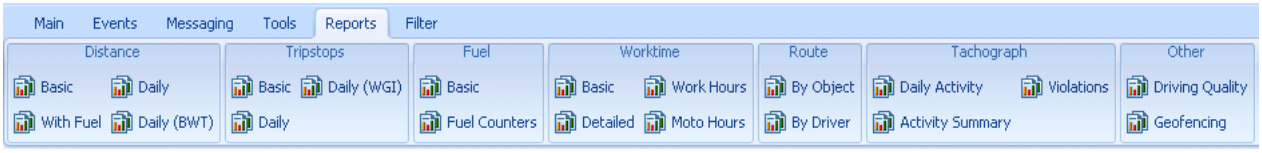
d) Min distance in track when engine is off – same as 'Min distance in track' except that points is being removed only then engine is off.
e) Min satellites in map – if record was made with lower number for satellites then this parameter then this point will not be shown in track.
f) Min stop time to show stop point in track – time interval after which if all stop conditions are true object is treated as not moving.

a) Show geozone entries in track – mark geozone entries in track
b) Use Median Track Speed Filter – filters vehicle track speed.

8) User Interface
   a) Remember toolbar layout – determines if toolbar layout will be remembered and loaded next time, exactly as it was set by user.
   b) Remember windows layout – determines if windows positions will be remembered and loaded the program, exactly as it was set by user.

9. REPORTS

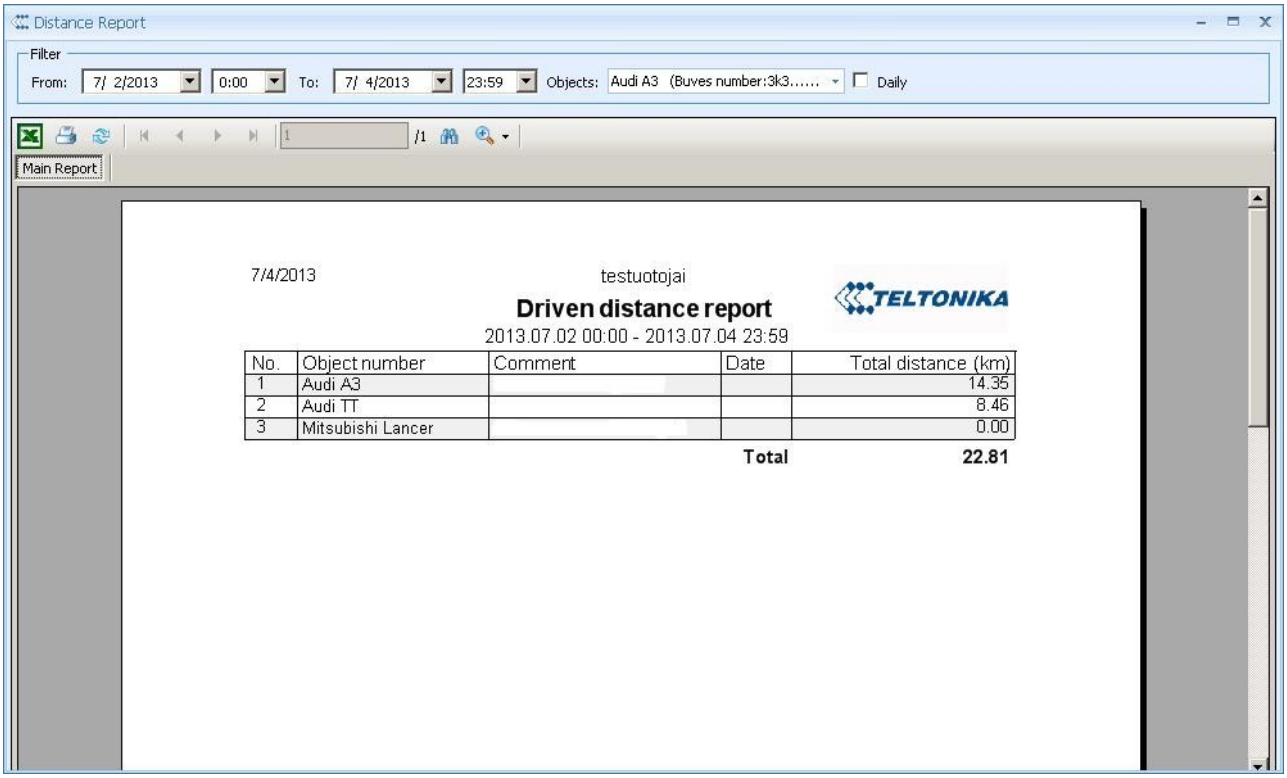
TAVL application has ability to generate statistic reports based on GPS data and/or external sensors or properties. These reports can be launched by clicking 'Reports' and choosing one of available.



Pic. 9.1. Reports ribbon

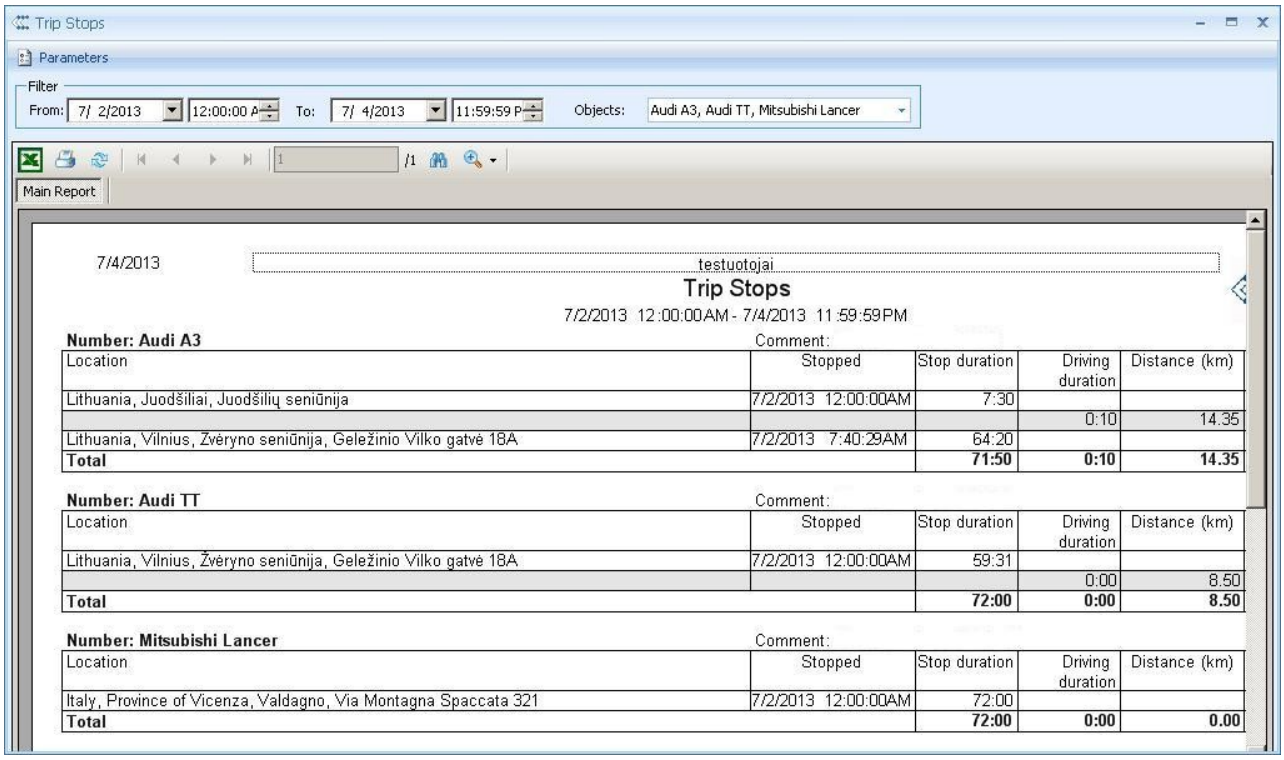
9.1 Basic Reports

Tavl has report functions. Select Report -> Distance Basic.
This report show information about object driven distance see pic 4.2. Each basic report has a filter with two common fields:
„From“ - „To“ - here you can select period of time, you will see all posts of that period.
“Objects” - you can select one or more objects to distinguish it from others.
Distance basic report also have checkbox **„Daily“**, it allow you to see separate, each day object driven distance. You can transfer these reports to excel documents by pressing green icon on top left side also if you have changed selected objects list or time period you have to refresh report to update it. Is is possible to print report , just press on printer icon on left side of window. For distance report accuracy you should be enabled odometer during module configuration. Because GPS data is inaccurate for these reports.



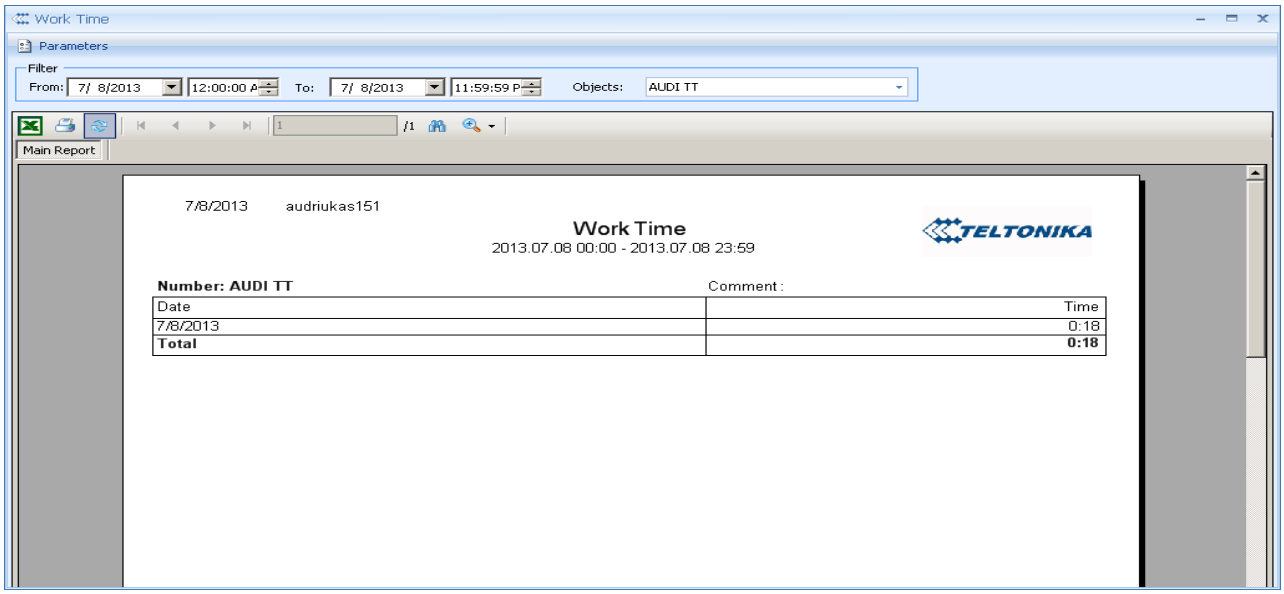
Pic. 9.2. Distance basic report

Trip stop basic report gives information about object stop and driving durations. It also contains date, time and location of each stop. For this report you should enable odometer and DIN1(ignition) during module configuration.


Trip Stops
Parameters
Filter
From: 7/ 2/2013 12:00:00 A To: 7/ 4/2013 11:59:59 P Objects: Audi A3, Audi TT, Mitsubishi Lancer
Main Report
7/4/2013
testuotojai
Trip Stops
7/2/2013 12:00:00AM - 7/4/2013 11:59:59PM
Number: Audi A3
Comment:
Location | Stopped | Stop duration | Driving duration | Distance (km)
Lithuania, Juodšiliai, Juodšilių seniūnija | 7/2/2013 12:00:00AM | 7:30
0:10 | 14.35
Lithuania, Vilnius, Žvėryno seniūnija, Geležinio Vilko gatvė 18A | 7/2/2013 7:40:29AM | 64:20
Total | 71:50 | 0:10 | 14.35
Number: Audi TT
Comment:
Location | Stopped | Stop duration | Driving duration | Distance (km)
Lithuania, Vilnius, Žvėryno seniūnija, Geležinio Vilko gatvė 18A | 7/2/2013 12:00:00AM | 59:31
0:00 | 8.50
Total | 72:00 | 0:00 | 8.50
Number: Mitsubishi Lancer
Comment:
Location | Stopped | Stop duration | Driving duration | Distance (km)
Italy, Province of Vicenza, Valdagno, Via Montagna Spaccata 321 | 7/2/2013 12:00:00AM | 72:00
Total | 72:00 | 0:00 | 0.00

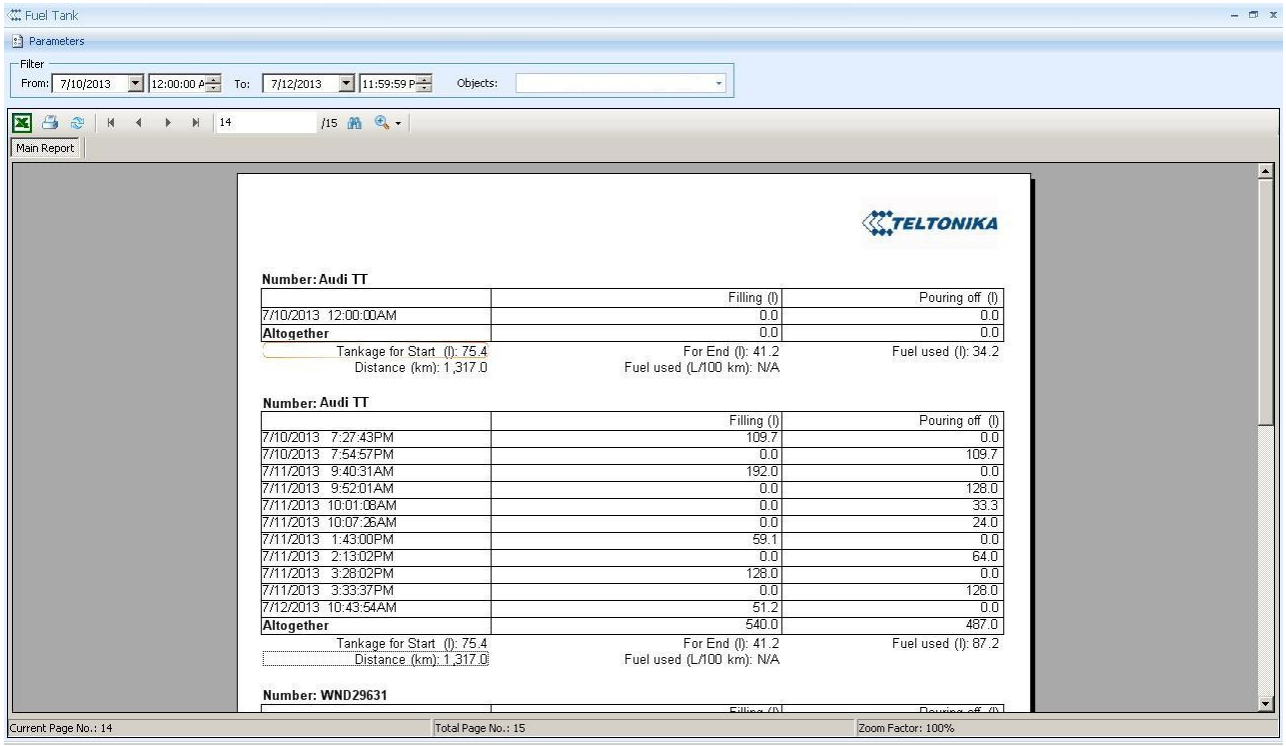
Pic. 9.3. Trip Stop Basic Repor

Work time basic report show object every day work time and in the last line it sum all days work time. Work time is beging to count when engine on and ending to count when engine off. This funciotn may be not turned on, so you should contact with your sales representative to activate it.For this report you should enable DIN1(ignition) during module configuration.



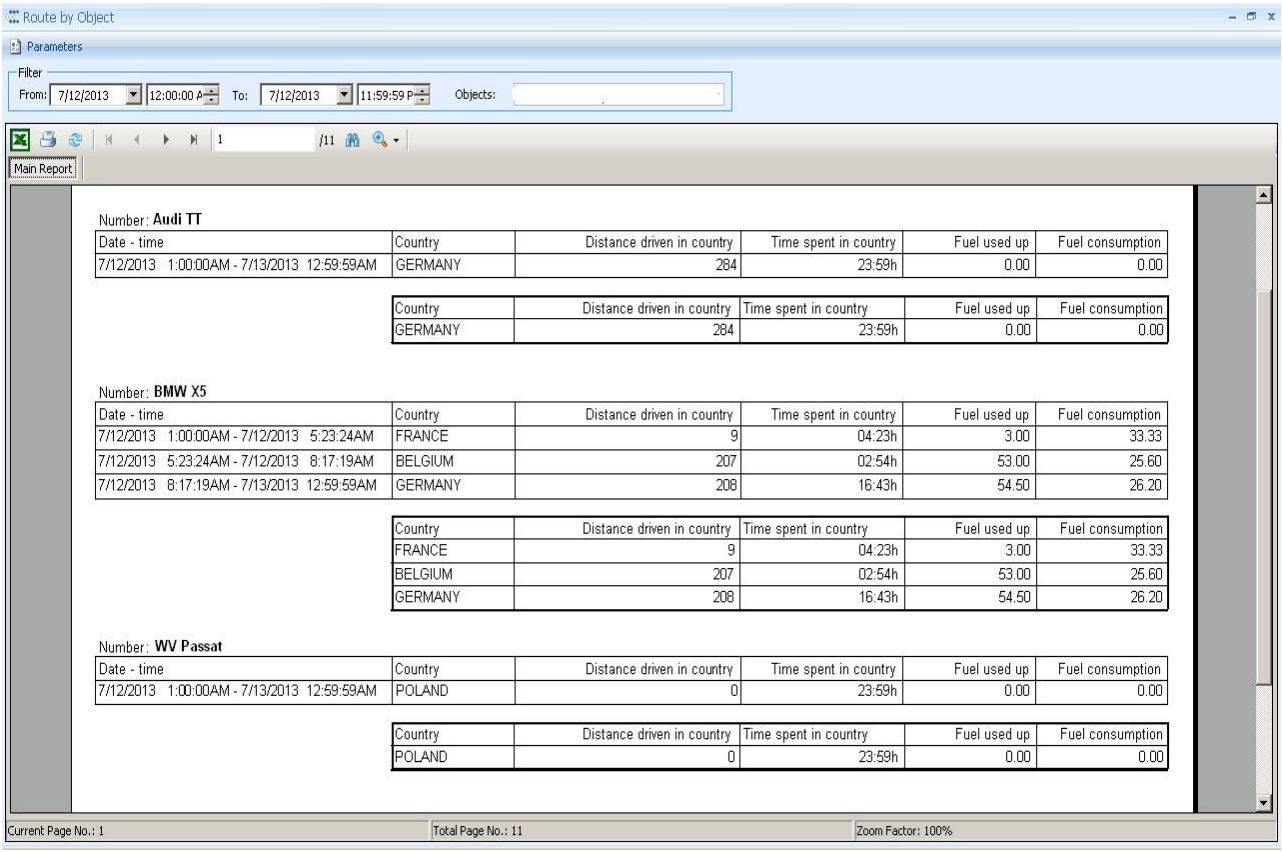
Pic. 9.4. Worktime Basic Report

Fuel tank basic report report shows how much fuel vehicle have poured in and how much fuel driver have poured out vehicle tank during a day. Fuel tank data about fuel can be read from CAN connection but it give data about percentage left fuel not about liters so you will have to calculate a proportion to get correct data in TAVL application.


Fuel Tank
Parameters
Filter
From: 7/10/2013 12:00:00 A To: 7/12/2013 11:59:59 P Objects:
Main Report
TELTONIKA
Number: Audi TT
Filling (l) Pouring off (l)
7/10/2013 12:00:00AM 0.0 0.0
Altogether 0.0 0.0
Tankage for Start (l): 75.4 For End (l): 41.2 Fuel used (l): 34.2
Distance (km): 1,317.0 Fuel used (L/100 km): N/A
Number: Audi TT
Filling (l) Pouring off (l)
7/10/2013 7:27:43PM 109.7 0.0
7/10/2013 7:54:57PM 0.0 109.7
7/11/2013 9:40:31AM 192.0 0.0
7/11/2013 9:52:01AM 0.0 128.0
7/11/2013 10:01:08AM 0.0 33.3
7/11/2013 10:07:26AM 0.0 24.0
7/11/2013 1:43:00PM 59.1 0.0
7/11/2013 2:13:02PM 0.0 64.0
7/11/2013 3:28:02PM 128.0 0.0
7/11/2013 3:33:37PM 0.0 128.0
7/12/2013 10:43:54AM 51.2 0.0
Altogether 540.0 487.0
Tankage for Start (l): 75.4 For End (l): 41.2 Fuel used (l): 87.2
Distance (km): 1,317.0 Fuel used (L/100 km): N/A
Number: WND29631
Current Page No.: 14
Total Page No.: 15
Zoom Factor: 100%

Pic 9.5. Fuel tank basic report

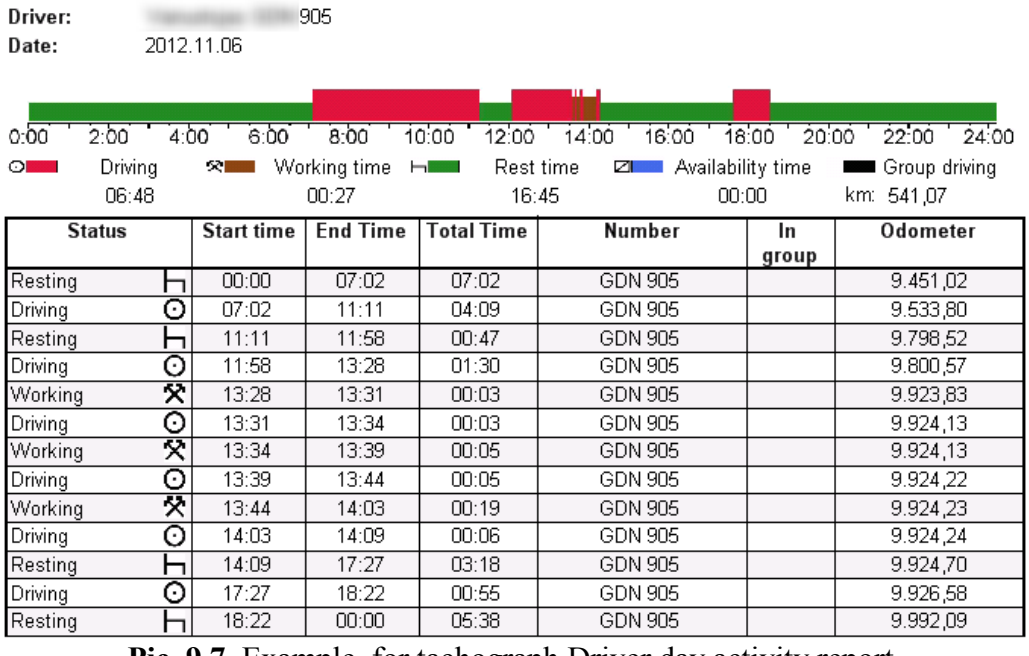
Route by object report shows basic information about each country where selected object had been driving: driven distance, fuel consumption, fuel used up, time spent in country. Fuel consumption shows how much fuel need for vehicle to drive 100 km. If your report does not show any information or shown zeros everywhere please contact with your sales representative.


Route by Object
Parameters
Filter
From: 7/12/2013 12:00:00 A To: 7/12/2013 11:59:59 P Objects:
Main Report
Number: Audi TT
Date - time | Country | Distance driven in country | Time spent in country | Fuel used up | Fuel consumption
7/12/2013 1:00:00AM - 7/13/2013 12:59:59AM | GERMANY | 284 | 23:59h | 0.00 | 0.00
Country | Distance driven in country | Time spent in country | Fuel used up | Fuel consumption
GERMANY | 284 | 23:59h | 0.00 | 0.00
Number: BMW X5
Date - time | Country | Distance driven in country | Time spent in country | Fuel used up | Fuel consumption
7/12/2013 1:00:00AM - 7/12/2013 5:23:24AM | FRANCE | 9 | 04:23h | 3.00 | 33.33
7/12/2013 5:23:24AM - 7/12/2013 8:17:19AM | BELGIUM | 207 | 02:54h | 53.00 | 25.60
7/12/2013 8:17:19AM - 7/13/2013 12:59:59AM | GERMANY | 208 | 16:43h | 54.50 | 26.20
Country | Distance driven in country | Time spent in country | Fuel used up | Fuel consumption
FRANCE | 9 | 04:23h | 3.00 | 33.33
BELGIUM | 207 | 02:54h | 53.00 | 25.60
GERMANY | 208 | 16:43h | 54.50 | 26.20
Number: WV Passat
Date - time | Country | Distance driven in country | Time spent in country | Fuel used up | Fuel consumption
7/12/2013 1:00:00AM - 7/13/2013 12:59:59AM | POLAND | 0 | 23:59h | 0.00 | 0.00
Country | Distance driven in country | Time spent in country | Fuel used up | Fuel consumption
POLAND | 0 | 23:59h | 0.00 | 0.00
Current Page No.: 1
Total Page No.: 11
Zoom Factor: 100%

Pic. 9.6 Route by object report

9.2 Driven day activity by tachograph

In a picture below is shown Driver day activity by tachograph:



Status	Start time	End Time	Total Time	Number	In group	Odometer
Resting	00:00	07:02	07:02	GDN 905		9.451,02
Driving	07:02	11:11	04:09	GDN 905		9.533,80
Resting	11:11	11:58	00:47	GDN 905		9.798,52
Driving	11:58	13:28	01:30	GDN 905		9.800,57
Working	13:28	13:31	00:03	GDN 905		9.923,83
Driving	13:31	13:34	00:03	GDN 905		9.924,13
Working	13:34	13:39	00:05	GDN 905		9.924,13
Driving	13:39	13:44	00:05	GDN 905		9.924,22
Working	13:44	14:03	00:19	GDN 905		9.924,23
Driving	14:03	14:09	00:06	GDN 905		9.924,24
Resting	14:09	17:27	03:18	GDN 905		9.924,70
Driving	17:27	18:22	00:55	GDN 905		9.926,58
Resting	18:22	00:00	05:38	GDN 905		9.992,09

Pic. 9.7. Example for tachograph Driver day activity report

In report is shown time diagram, in which could be seen sequence of activities. Status shows the name and icon of the activity (Driving, Working time, Rest time, Availability time, Group driving). Also there is possibility to see start time, end time and total time of the action. In group shows was drived alone (only one card inserted in tachograph) or two drivers were in one vehicle. Report also shows number of the driver and odometer value is shown of endtime of activity.
In this report you can see status of driver day activity on selected day.
There are 5 possible statuses:

- Driving
- Working time
- Rest time
- Availability time
- Group driving

All these statuses are shown graphically and in numbers. In numbers you can see period and
NOTE: Timestamp is taken from tachograph, not from GPS, so all timebased calculations are made from that timestamp.

9.3 Driven worktime summary by tachograph

In a picture below is shown Driver worktime summary by tachograph:

2012.11.12

Driver worktime summary by tachograph

TELTONIKA

Driver: [redacted] GDN 905
Period: 2012.11.04 00:00:00 - 2012.11.11 23:59:59

	Total time														
	Driving			Other works			Availability time			Total work time			Distance	Rest	Last stop country
	Day	Night	Total	Day	Night	Total	Day	Night	Total	Day	Night	Total			
2012.11.04 Sn	00:00	00:22	00:22	00:00	00:00	00:00	00:00	01:23	01:23	00:00	01:45	01:45	142,60	22:14	GERMANY
2012.11.05 M	06:42	00:00	06:42	01:09	00:00	01:09	00:00	00:00	00:00	07:51	00:00	07:51	473,15	16:09	GERMANY
2012.11.06 T	06:48	00:00	06:48	00:27	00:00	00:27	00:00	00:00	00:00	07:15	00:00	07:15	541,07	16:45	DENMARK
2012.11.07 W	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	0,00	24:00	DENMARK
2012.11.08 Th	07:01	00:00	07:01	01:42	00:00	01:42	00:00	00:00	00:00	08:43	00:00	08:43	462,66	15:17	GERMANY
2012.11.09 F	02:37	00:00	02:37	00:13	00:00	00:13	00:00	00:00	00:00	02:50	00:00	02:50	117,59	21:10	GERMANY
2012.11.10 S	08:58	00:02	09:00	00:28	00:00	00:28	00:00	00:00	00:00	09:26	00:02	09:28	709,23	14:32	GERMANY
2012.11.11 Sn	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	0,00	24:00	GERMANY
Workdays	23:08	00:00	23:08	03:31	00:00	03:31	00:00	00:00	00:00	26:39	00:00	26:39	1.594,47	93:21	
Saturdays	08:58	00:02	09:00	00:28	00:00	00:28	00:00	00:00	00:00	09:26	00:02	01:45	709,23	14:32	
Sundays	00:00	00:22	00:22	00:00	00:00	00:00	00:00	01:23	01:23	00:00	01:45	01:45	142,60	46:14	
Total	32:06	00:24	32:30	03:59	00:00	03:59	00:00	01:23	01:23	36:05	01:47	37:52	2.446,29		

Pic. 9.8. Example for tachograph Driver worktime summary report

In these reports you can easily access to drivers worktime in day and night times. There are shown last stop country and driven distance.
Time is seperated into Day time (from 07:01 to 23:59) and Night time (from 00:00 to 07:00). Also time is differentiated into driving, other works, availability time and rest. In table 6 you will find this differentiation matches with tachograph data.

Differentiation	Tachograph data	Comment or explanation
Driving	Driving	Time, while driver is driving the vehicle. Status set in tachograph is driving.
Other works	Working time	Time, while driver is do other work, but do not drive.
Availability time	Availability time	Time, when to drivers driving, while for one driver Driving time is counter, the same time for other driver is counted as Availability time. Status set in tachiograph is driving.
Rest	Rest time	Time, while driver is resting. Status set in tachograph is rest.

9.4 Driver violation by tachograph

In a picture below is shown Driver violation by tachograph:

2012.11.12

Driver violation by tachograph

TELTONIKA

Driver: [redacted] GDN 905
Period: 2012.10.25 00:00:00 - 2012.11.08 23:59:59

No.	Violations			Description	Comment
	Date	Time	View		
	2012.10.25				
1		12:25	10h night working time exceeded: 0h 55min (EC 2002/15)	> than 10h night work time (EC 2002/15)	
	2012.11.05				
2		7:49	Weekly rest time is too short 14h 57min	Weekly rest time is too short	
	2012.11.08				
3		9:37	Weekly rest time is too short 5h 45min	Weekly rest time is too short	

Pic. 9.9. Example for tachograph Driver violation report

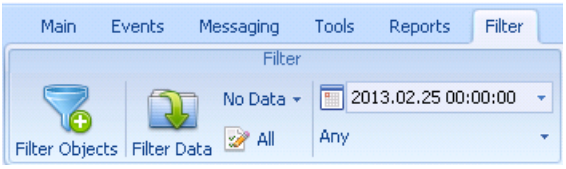
In this report it is shown driver violations. There are 15 violation types, also violation count, which counts, how many times per preset ime period some kinf of violation was made (pic. 9.8.).

No.	Violation type	Violation count
1	<than 45 min rest time	0
2	>than 9h daily driving	0
3	>than 10h daily driving	0
4	Weekly rest time is too short	2
5	>than 56h weekly driving	0
6	>than 90h driving in two weeks	0
7	No 9h rest time	0
8	No 11h rest time	0
9	No 8h rest time in group	0
10	No 9h rest time in group	0
11	30min resting time is too short (EC 2002/15)	0
12	45min resting time is too short (EC 2002/15)	0
13	48h/week working time exceeded (EC 2002/15)	0
14	60h/week working time exceeded (EC 2002/15)	0
15	>than 10h night work time (EC 2002/15)	1

Pic. 9.10. Example for tachograph Driver violation report

10.FILTER

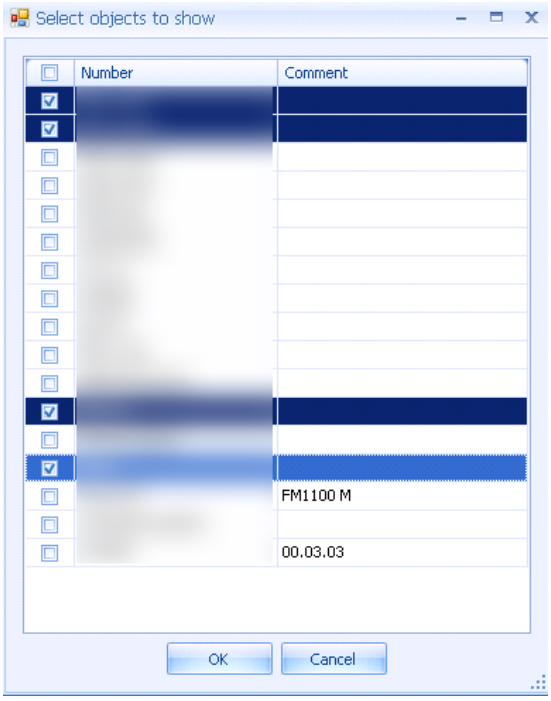
Filtering enables object and data filters refine the information, see pic. 10.1.



Pic. 10.1. Filtering

10.1 Filter Objects

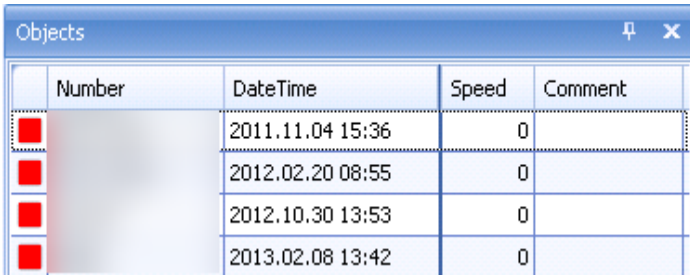
Loading lots of objects takes more time and sometimes it can be very confusing. Filtering lets you choose which object you want to view, and hides the rest. When refreshing objects, data is sent only about those that are marked, so it takes less time. In the TAVL toolbar click on 'Filter' or hit Ctrl + Shift + F, see pic. 10.2.



Pic. 10.2. Object Filtering

In the new window click on object you want to be displayed and click 'Ok', see pic. 10.3.

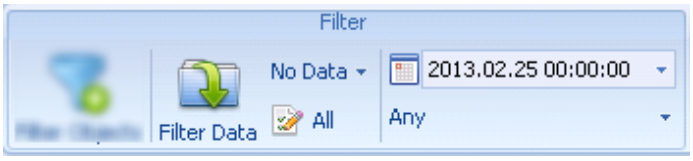
Before filtering



After filtering

Pic. 10.3. Filtering Results

10.2 Filter



Pic. 10.4 Data Filtering

To check which object do not send data or send rarely takes more time and sometimes it can be very confusing. Filtering lets to see which object do not send data for set period or send rarely, see 10.4. Filter type can be: No Data (able set data type: any or send other GPRS) or Less Data (able set message count by period)

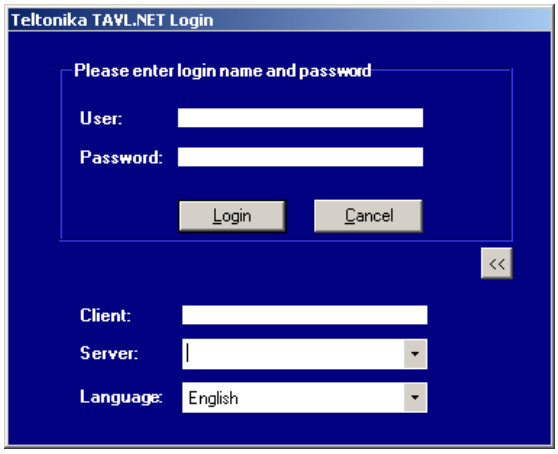
11.LOCALIZATION

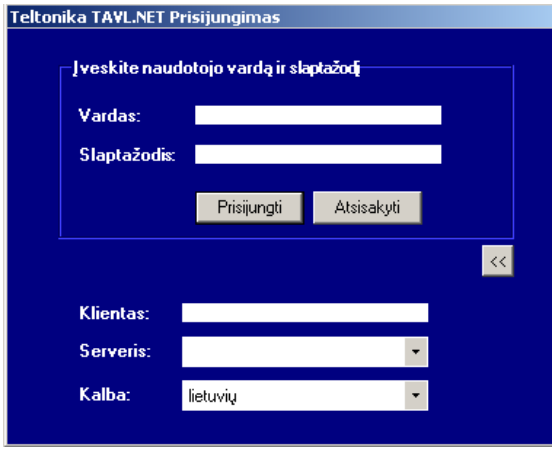
TAVL language localization tool is used to build localized (translated) version of TAVL application.

On excel file you will find all fields in english language, make changes on this file - translate each field named in english to desired name in your language. Localization will be completed by compiling this file.

For more information and excel file for localization, please contact your sales manager.

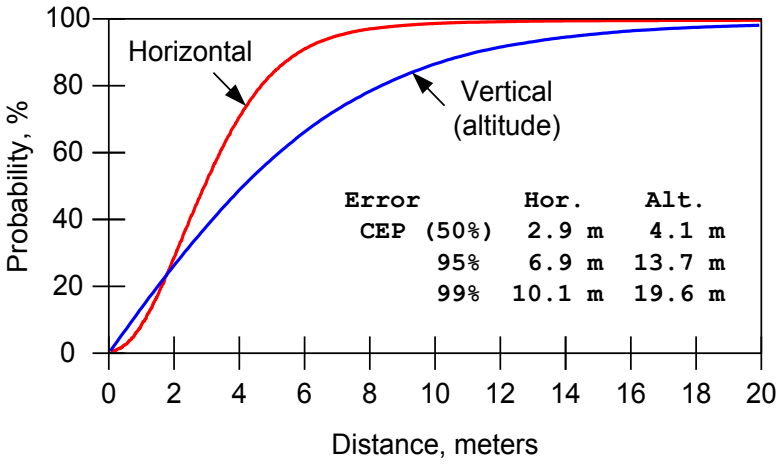
After Localization when you run the TAVL application, you will be able to set new language.





12.FREQUENTLY ASKED QUESTIONS (FAQ)

1. Why doesn't objects trail match roads that are shown in the map? What is the accuracy of GPS?



Object trail doesn't coincide with roads shown in the maps because of GPS limited accuracy. GPS accuracy depends on location (geographic latitude, longitude), satellites' location and ionosphere's conditions. In perfect conditions (sunny weather, no clouds, in open area, without skyscrapers, woods) accuracy can be about 3 – 5 meters.

Usually accuracy is estimated using statistical method CEP (Circle of Equal Probability). This method allows us to consider, that in probability of 50%, object's coordinates' error does not exceed designated values.

Otherwise, roads in the map not always are defined very precisely (especially considering Eastern Europe). Another possibility is that new roads don't exist in the map.

2. Why do data transfers from server to application take so long?

Duration of data transfers from server to user application depends on amount of data and speed of Internet connectivity. While object registers many parameters very often grows data quantity. Then transfer time for long requested period of time could be very long. So if you want to increase data transfer time you should decrease requested data time period.

One more way to decrease data transfer time is to decrease frequency of object's parameters data (time T_1 should be not 1 minute but 2 – 3 minutes).

3. Why it is impossible to request current object position?

In most cases you are unable to receive information about current object's location, because it is out of GSM coverage (is in the sea, in deep woods, etc.)

4. It is one or two hours since module sent its data. Why is it not refreshed?

Module is sending data to the server at fixed time. If the connection is not possible (there is no GPRS context), the next sending will be at fixed time. Still You can send the request, and get the latest data. Also profile may define data acquirement less often (i.e. every 10 minutes when object is not moving) and settings allow only full packet sending.

5. Why only yesterday's data is shown?

Either module didn't sent data because it's not time to do it or it couldn't send it because of network problems. Solution is to configure module so it sends data at desired time.

6. How can I know objects location if it is not sending data by GPRS?

You can send a request and get the SMS with 24 coordinates (see chapter 4.4.4).

7. Why is object changing its coordinates even when engine is off?

It is because of GPS accuracy. If object is standing between tall buildings or in from of the wall, module doesn't see enough satellites to set its exact coordinates. Then each coordinate is calculated with a slight error. Error depends on number of visible satellites. If object is standing between tall buildings or in front of a wall it may not be enough for module to set its position correctly.

8. I'm receiving incorrect time – it's always same interval ahead or behind current time.

This is happening because of incorrect time zone settings on PC. Please choose matching time zone in windows regional settings.

13.CHANGE LOG

Nr.	Date	New version number	Comments
1	2013-02-28	1.0	Version Draft Release
2	2013-03-01	1.3	Minor changes
2	2013-08-09	1.4	Reports updates